

MILITARY MEDICINE

ORIGINAL ARTICLES

Authors alone are responsible for opinions expressed in their contributions

Immunological Studies. II. Intradermal Tests and Their Application in the Field for the Detection of Schistosomiasis Japonica, Paragonimiasis and Clonorchiasis*

By

GEORGE W. HUNTER, III,¹ L. S. RITCHIE,² C. PAN,³ S. LIN,⁴ S. SUGIURA,⁵
K. NAGANO,⁶ AND M. YOKOGAWA⁷

INTRODUCTION

THE importance of such diseases as schistosomiasis, paragonimiasis and clonorchiasis in the over-all economy and welfare of endemic areas is well recognized. Although definite diagnosis of these infections can only be made by finding the characteristic eggs in feces, sputum or biopsies, it is not always possible to detect the infections by these means, especially in the very early or late stages, or when the infec-

tions are light. Thus, immunological methods may be resorted to as a diagnostic aid. Several immunological techniques have been used in the detection of these infections with considerable success (Katkin *et al.*, 1946; Bozicevich, J., 1951; Oliver-Gonzalez, J., 1953). Of these, the intradermal tests have been utilized as tools in epidemiologic surveys (Pesigan *et al.*, 1954; Hsü *et al.*, 1955; Ritchie *et al.*, 1956).

Since oriental schistosomiasis, paragonimiasis, and clonorchiasis are endemic in Japan an opportunity was afforded to develop and test antigens for intradermal reactions in the detection of these diseases. Such a co-operative study with Japanese colleagues was initiated in 1948 by the Department of Medical Zoology of the 406th Medical General Laboratory. Preliminary reports, abstracts and papers have given the results of these studies from time to time (Ann. Hist. Repts. 1948-1952; Hunter *et al.*, 1950; Ritchie *et al.*, 1951; Anon., 1951). This paper brings these data together along with some new material.

REVIEW OF RECENT LITERATURE

Schistosomiasis japonica.—Wright *et al.* (1947) summarizing the literature on sero-

* From the 406 Medical General Laboratory, Tokyo; Yamanashi Medical Research Institute, Kofu; Kitasato Institute, Tokyo and The Japanese Institute of Public Health, Tokyo.

¹Colonel, USA (Ret.). Department of Microbiology, College of Medicine, University of Florida, Gainesville, Florida.

²Tropical Research Medical Laboratory, APO 851, New York, New York.

³Dept. of Tropical Public Health, School of Public Health, Harvard University, Boston, Massachusetts.

⁴Dept. of Medical Zoology, 406 Medical General Laboratory, APO 343, San Francisco, California.

⁵Yamanashi Medical Research Institute, Kofu, Japan.

⁶Kitasato Institute, Tokyo, Japan.

⁷Dept. of Parasitology, Chiba University, Chiba City, Japan.

logic tests for schistosomiasis pointed out the earlier contributions in this field. Our work with *Schistosoma japonicum* antigen was reported largely in the Annual Historical Reports of the 406th Medical General Laboratory (*vide supra*) and was concerned solely with intradermal tests. Hunter *et al.* (1950) in Japan, and Pesigan *et al.* (1951) in the Philippines, published their preliminary findings using cercarial and whole worm antigen for skin testing for schistosomiasis japonica. Pesigan *et al.* (1954) expanded their program to utilize the skin testing technic in their epidemiologic surveys in the Philippines. Okabe *et al.* (1954) were the first group in Japan to make extensive use of the intradermal test. They tested a total of 9,360 persons in and around the endemic schistosomiasis area near Kurume, Fukuoka Prefecture.

Meanwhile Okabe and Yamaguchi (1952, 1953) had reported their results of intradermal and complement-fixation tests on suspected cases of schistosomiasis japonica. Sawada *et al.* (1954) tested various fractions of *S. japonicum* antigen in animals and on a small series of known positive human cases. More recently, Hsü *et al.* (1955) reported the results secured with the intradermal test run by one of us (LSR) in epidemiologic survey in Taiwan. Ritchie *et al.* (1956) described the use of the skin test in the detection of apparent old infections of *S. japonicum* in the Numazu area of Shizuoka Prefecture in Japan.

Paragonimiasis.—A search of the literature reveals that little serologic work has been carried out on paragonimiasis. The earlier immunological studies on paragonimiasis were reported by Japanese workers and are not all accessible to us. Ando (1921 a & d) noted that the infection with *Paragonimus westermani* conferred partial immunity against the parasite. He demonstrated the presence of complement fixing antibodies in the sera of patients and experimental animals (Ando, 1921 b). In the same year Ando (1921 c) further reported on the hemolytic activity of the parasite.

In Japan we skin tested intradermally

persons positive for *P. westermani* eggs with a 1:5000, 1:10000 and 1:20000 saline extract of whole worm antigen (Annual Hist. Rept., 1950, 1951; Ritchie *et al.* 1951). Hunter *et al.* (1953) found that the use of the AMS III and MGL stool techniques resulted in the detection of as many *Paragonimus* infections as sputum alone. Komiya and Yokogawa (1954) reported further on the efficacy of the AMS III technique in diagnosing cases of paragonimiasis. Hosokawa *et al.* (1952) prepared adult worm antigen of *P. westermani* and used a 5 and 10 per cent emulsion with 0.5 per cent phenol as a preservative. They secured a specific skin reaction in persons with present and past infections of paragonimiasis and reported a positive reaction 2-8 weeks after the ingestion of metacercariae. Chung *et al.* (1955a) described their results with an antigen from *P. westermani* in complement-fixation and skin tests on 13 known positive cases. Miyake and Oike (1951) and Oike *et al.* also in 1951, carried on surveys for paragonimiasis using portable X-rays and in one region they also used intradermal skin tests. Chung *et al.* (1955b) noted cross reactions in patients with paragonimiasis, clonorchiasis and schistosomiasis. Yokogawa *et al.* (1956) report further details of recent complement fixation tests for paragonimiasis.

Clonorchiasis.—There does not appear to have been any previous work on intradermal or complement fixation tests for the detection of clonorchiasis except for that of Chung *et al.* (1955, 1955b) in which a few people were skin tested and checked for cross reactions with other antigens.

MATERIALS AND METHODS

Securing the adult parasites.—Adult *S. japonicum* were obtained from the portal system of white mice, hamsters, rabbits and cats which had been exposed to cercariae 4 to 6 weeks previously (Pan, Kaufman, and Hunter, 1951; Pan and Hunter, 1951). Metacercariae of *Paragonimus westermani* collected from gills of naturally infected *Eliocheir japonicus* by dissection, and metacercariae of *Clonorchis sinensis* collected

from *Ctenopharyngodon* sp. by digestion of muscle with artificial stomach juice, were fed to cats by intubation. The adult parasites were removed from infected organs of the cats 2 to 3 months after the infection.

Securing cercariae of S. JAPONICUM.—Naturally infected *Oncomelania nosophora* from highly endemic areas were gently crushed between two glass slides and the livers collected in a watch glass containing a small amount of dechlorinated tap water. When sufficient numbers of infected livers were obtained, they were gently teased with dissecting needles under a dissecting microscope. They were then allowed to stand for 15 minutes in order to permit the cercariae and sporocysts to free themselves from the host tissue which was then carefully removed. Distilled water was added to the suspension of cercariae and sporocysts to wash out the debris. The potential antigenic material was washed three more times with a capillary pipette under a dissecting microscope. The preparation of the raw antigen was carried out in the same manner for both adult worms and cercariae (*vide infra*).

Preparation of raw antigen.—(1) The parasites were collected and repeatedly washed in sterile physiologic saline until visually free of foreign matter. (2) The worms were rinsed three times in distilled water; this caused them to swell, finally killing them. (3) The specimens were then transferred to shell freezing vials, and alternately frozen and thawed 10 times, using dry ice and methyl alcohol, and a 37°C water bath. (4) They were then lyophilized and stored in vacuum-sealed Lusteroid vials at -40°C.

Extraction of water soluble fraction.—(1) The stored vials were warmed at room temperature, and the contents thoroughly ground with a sterile agate mortar and pestle. (2) The powdered antigen was brushed into a tared 15 ml. centrifuge tube and the weight of powder obtained by difference. (3) The antigen was diluted with saline containing merthiolate (1:7500) to make a 1:100 dilution and extracted with occasional shaking over a period of 24 hours at 4°C. (4) It was then removed to a 56°C water bath for four

hours with shaking every 30 minutes. (5) The antigen was cooled to room temperature and centrifuged at 2000 r.p.m. for 15 minutes, after which the supernate was transferred to a rubber stoppered vaccine bottle and tested for sterility. At 4°C. this stock antigen retained its potency at least 8 months. (6) Prior to use, the stock antigen was usually diluted to 1:10000 with saline containing merthiolate (1:7500).

Extraction of alcohol soluble fraction of S. JAPONICUM antigen.—(1) The lyophilized schistosome powder was brushed into the center of a piece of filter paper (which had previously been washed until free of the ammonium ion and extracted repeatedly with absolute alcohol) and covered with another such piece. The edges of these two pieces were folded so as to avoid any loss of powder in the Soxhlet extractor. (2) The packet was then placed in the extractor and treated with 10 ml. of absolute alcohol for 12 hours. (3) The packet was then removed and air dried after which it was opened, scraped into a centrifuge tube, and enough distilled water added to make a 1:100 dilution. This was shaken or stirred to wet the powder; it was then extracted with occasional shaking for 24 hours at 37°C. (4) After cooling to room temperature it was centrifuged at 2000 r.p.m. for 15 minutes and the supernate transferred to a rubber stoppered vaccine bottle which was then tested for sterility. (5) Before use it was diluted as required with saline containing 1:7500 merthiolate as a preservative.

Controls.—Controls consisted of 1:7500 merthiolated saline. In cases where cercarial antigen was used an additional control was prepared with saline from the livers of uninfected snails (*Oncomelania nosophora*).

The intradermal tests.—Whenever possible preliminary skin tests were conducted to determine the most satisfactory antigen dilution. Usually such tests included antigen dilutions of 1:1000, 1:5000, 1:10000 and 1:20000. In these intradermal tests approximately 0.01 ml. of antigen was used, i.e. sufficient to raise the smallest possible wheal (about 3 mm.). Injections were made on the

volar surface of the forearm following the method outlined by Wright, Bozicevich, *et al.* (1947) and Bozicevich and Hoyem (1947). The next dilution of antigen or control was injected about two inches below the initial injection site; when necessary, both arms were used. Controls were routinely used (*vide supra*).

The wheals were carefully marked at four points with ink and the time of injection recorded on the arm. The tests were read at the end of 15 minutes. A test was considered to be positive if: (1) there was an increase of 3 mm. in the diameter of the antigenic wheal over its initial size; and (2) if, at the same time, the antigenic wheal showed a similar increase over the size of the control. Whenever necessary a magnifying glass was used to help secure an accurate reading.

RESULTS OF THE INTRADERMAL TESTS

All persons tested, including the controls, harbored an assortment of intestinal helminths and protozoa. Since cross-reactions were not apparent for either of the several antigens, uninfected controls were not critical; in fact it was virtually impossible to find such among the indigenous populations. A small series of 21 uninfected Americans was accumulated at various times and all were negative with 1:10000 dilutions of adult antigens of *S. japonicum* and *P. westermani*; *C. sinensis* antigen was not tested in this series.

SCHISTOSOMIASIS: *Results with cercarial and adult S. japonicum antigen.* Initially experiments were carried out on 34 persons positive for *S. japonicum* eggs by stool to determine the optimum antigen dilution (Table I). For the adult, saline-extracted antigen a 1:10000 dilution proved most favorable, but for the same antigen which received a preliminary alcohol extraction the 1:5000 dilution was optimum. The latter was not as satisfactory as the saline fraction of the antigen and so was not used subsequently. A saline fraction of *S. japonicum* cercariae was also tested in a dilution of 1:10000 (Table I). Initially both adult and cercarial antigens gave positive reactions for 93 per cent of 103 known positive school children (11-15

years of age), while the merthiolated saline controls gave no false positives in 68 known negative children of the same age. With the addition of 33 known positives for a total of 136 cases, 90.4 and 94.9 per cent were positive with cercarial and adult antigen respectively. In view of these results, no further testing with cercarial antigen was carried out.

Further tests were carried out using the 1:10000 dilution of the adult worm antigen until a total of 298 known positives had been tested. Of these 282 or 94.6 per cent gave a positive reaction, while 14 (6.9 per cent) of 202 known negatives gave false positive reactions. Both groups were positive for such parasites as ascaris, whipworm, hookworm or pinworm and intestinal protozoa. The negative control groups were from non-endemic areas, were negative by multiple stool examinations for schistosomiasis and had no history of exposure (Table I).

Tests on persons with "Koganbyo."—During studies in 1949 on "kyoganbyo," or lake-side disease, at Lake Shinji, Shimane Prefecture, Japan, 51 persons highly sensitized to the dermatitis producing cercariae of the bird schistosome, *Gigantobilharzia sturniae* Tanabe, were skin tested with a 1:10000 dilution of the adult *S. japonicum* antigen. There were no positive reactions (Table II) and 10 controls known to have *S. japonicum* gave positive reactions with the identical batch of antigen.

Results obtained in Shizuoka Prefecture.—Although the skin test results of Shizuoka Prefecture are reported in full in the epidemiologic survey of this area it appears desirable to summarize the results obtained (Ann. Hist. Report 1950: Anon., 1951; Ritchie *et al.* (1956). The epidemiologic survey of Shizuoka Prefecture covered 22 communities and 2,278 individuals; 470 (mostly others) were skin tested for schistosomiasis japonica with a 1:10000 saline dilution of an adult *S. japonicum* antigen. Three hundred and forty-nine of these were tested from four communities believed to be within the original endemic area. In three of these villages stools positive for *S. japonicum* eggs

TABLE I. RESULTS OF INTRADERMAL TESTS WITH EXTRACTS OF *Schistosoma japonicum* ANTIGEN MADE FROM CERCARIAE AND FROM ADULT WORMS

Source of Antigen	Extracted with	Dilution	Positive for <i>S. japonicum</i> ¹ by Stool			Negative for <i>S. japonicum</i> ^{2,3} by Stool		
			No. Tested	No. Positive	% Positive	No. Tested	No. Positive	% Positive
Cercariae	Saline	1:10000	136	123	90.4	68 68	2 0	3.0 ⁴ 0
Adult Worms	Saline	1:5000	34	32	94.3	134	12	9.7
		1:10000	136*	129*	94.9	134**	7*	5.3
			298	282	94.6	202	14	6.9
		1:20000	34	25	73.5	134	11	8.2
	Alcohol	1:5000	34	21	61.8	134	7	5.3
		1:10000	34	18	52.9	134	7	5.3
		1:20000	34	11	32.4	134	7	5.3

¹ In addition to *S. japonicum* these persons also harbored various intestinal helminths such as ascariis, whipworm, and hookworm as well as the common intestinal protozoa.

² These individuals were negative for *S. japonicum* upon repeated examinations and came from a non-endemic area. The incidence of the other helminths and protozoa was essentially the same as in those known to be positive for *S. japonicum*.

³ Twenty-one Americans negative for intestinal helminths were negative when tested intradermally for *S. japonicum* and *P. westermani*.

⁴ Uninfected snail liver control.

⁵ On all tests for schistosomiasis, paragonimiasis and clonorchiasis "doubtful positives" were considered to be negative.

* Included in the 282 and 298.

** Included in the 14 and 202.

had been encountered. The intradermal test indicated a much higher incidence of schistosomiasis than found by means of stool examinations (Table III). More positive reactions were encountered in those over 31

than in the 0-15 and 16-30 year age groups.

PARAGONIMIASIS: *Results of intradermal tests.*—A saline-extracted, adult worm antigen of *P. westermani* was used for the intradermal tests on proven cases of paragoni-

TABLE II. RESULTS OF INTRADERMAL CROSS-REACTION TESTS WITH ANTIGENS FROM ADULT WORMS IN PERSONS WITH SCHISTOSOMIASIS JAPONICA, PARAGONIMIASIS, CLONORCHIASIS, AND SENSITIZED TO A BIRD SCHISTOSOME

Saline Extract of Adult Worm Antigen of	Dilution	Number of Individuals Tested For:							
		Schistosomiasis		Paragonimiasis		Clonorchiasis		Bird Schistosome	
		No. Tested	% Positive	No. Tested	% Positive	No. Tested	% Positive	No. Tested	% Positive
<i>S. japonicum</i>	1:10000	298	94.6	79	5.1	129	4.7	51	0
<i>P. westermani</i>	1:10000	99	4.0	113	95.6	—	—	—	—
<i>C. sinensis</i>	1:10000	92	8.7	47	44.7	136	64.7	—	—

TABLE III. RESULTS OF INTRADERMAL TESTS FOR SCHISTOSOMIASIS JAPONICA IN PERSONS IN SCHIZUOKA PREFECTURE, JAPAN*

(From data in JLC Bull. #4, 1951 and Ritchie, *et al.* (1956))

Community	Stool Examinations			Intradermal Tests		
	No. Examined	No. Positive	% Positive	No. Examined	No. Positive	% Positive
Ashitaka	101	0	0	73	10	14
Kanaoka	100	26	26	43	14	33
Sudo	101	5	5	165	91	55
Ukishima	100	3	3	68	29	43
Yoshiwara	106	0	0	121	0	0

* The groups examined by stool and intradermal test were not identical.

miasis. Initially 37 persons passing eggs were each tested with a 1:5000, 1:10000 and 1:20000 dilution of merthiolated (1:7500) antigen. Positive reactions occurred in 35 with the first two dilutions, while all reacted with the 1:20000. In the latter case the wheals were considerably smaller and therefore the 1:10000 dilution was selected for further testing. An additional 50 cases were tested of which 47 were positive. In Korea 26 more cases were obtained by one of us (GWH) and all were positive. Thus for a total of 113 proven cases (egg passers) of paragonimiasis, 108, or 95.6 per cent, gave positive reactions. A total of 60 known negative persons were also tested and none produced a false positive reaction (Table IV).

CLONORCHIASIS: Results of intradermal

tests.—Although the antigen from adult *Clonorchis sinensis* was prepared in the same manner as for *S. japonicum* and *P. westermani* the results were disappointing. After preliminary tests the 1:10000 dilution appeared to give the best results, but even so only 64.7 per cent of 136 cases gave a positive reaction. Furthermore the rate of false positives was high, being 17.2 per cent of 58 negative cases (Table V). In view of these equivocal results no further work was carried out with this antigen. It appears possible that a further refinement in the method of antigen production might yield more satisfactory results.

DISCUSSION

Criteria for positive test.—Other investigators (Bozicevich and Hoyem, 1947; and

TABLE IV. RESULTS OF INTRADERMAL TESTS WITH A SALINE EXTRACT OF *P. Westermani* ANTIGEN MADE FROM ADULT WORMS

Dilution	Positive for <i>P. westermani</i> ¹ by Stool or Sputum			Negative for <i>P. westermani</i> ^{2,3} by Stool or Sputum		
	No. Tested	No. Positive	% Positive	No. Tested	No. Positive	% Positive
1:5000	37	35	94.6	30	2	6.7
1:10000	113	108	95.6	60	0	0
1:20000	37	37	100	30	0	0

¹ In addition to *P. westermani* these persons also harbored various intestinal helminths such as ascariis, whipworm and hookworm as well as the common intestinal protozoa.

² These individuals were negative for *P. westermani* upon repeated examinations of stools and sputum and came from non-endemic areas. The incidence of the other helminths and protozoa was essentially the same as in those known to be positive for *P. westermani*.

³ Twenty-one Americans negative for intestinal helminths were negative when tested intradermally for *P. westermani*.

TABLE V. RESULTS OF INTRADERMAL TESTS WITH A SALINE EXTRACT OF *Clonorchis sinensis* ANTIGEN MADE FROM ADULT WORMS

Dilution	Positive for <i>C. sinensis</i> ¹ by Stool			Negative for <i>C. sinensis</i> ² by Stool		
	No. Tested	No. Positive	% Positive	No. Tested	No. Positive	% Positive
1:5000	129	88	68.2	58	13	22.4
1:10000	136	88	64.7	58	10	17.2
1:20000	129	68	52.7	58	8	13.6

¹ In addition to *C. sinensis* these individuals also were parasitized by various intestinal helminths such as ascaris, whipworm and hookworm as well as the common intestinal protozoa.

² These persons were negative for *C. sinensis* upon repeated examinations and came from non-endemic areas. The incidence of the other helminths and protozoa was essentially the same as in those known to be positive for *C. sinensis*.

Oliver-Gonzales and Pratt, 1944) considered a reaction to be positive if the diameter of the antigenic wheal exceeded the control by at least 3 mm. This criterion presupposes that exactly the same amount of antigen and control solution will be injected. Skilled handling of the needle and syringe approximates this, but not uncommonly a difference of 1 mm. occurs. Irregularity in shape of the antigenic wheal may also affect readings. To overcome these biases, the limits of both the control and test sites were measured immediately after injections, two readings being taken on each wheal, e.g. 2×3 , 3×3 , or 4×3 mm. Four ink dots were placed at the edge of each wheal to guide comparable measurements made 15 minutes later. To consider a reaction positive the difference between the increase of the antigenic wheal over its original size and in excess of any increase in the control had to be 3 mm. in at least one of the two measurements. These criteria were utilized in the belief that if the antigen provided satisfactory results under these conditions, it would be reliable when used in the field by less experienced workers.

The intradermal tests with S. japonicum antigen.—The results obtained are summarized in Table I and indicate that approximately 95 per cent of those passing eggs were detected by a 1:10000 whole worm antigen; a similar dilution of the alcoholic fraction of the *S. japonicum* antigen made from adult parasites was not as sensitive as the portion extracted with saline. This corre-

sponds with the results obtained by Sawada *et al.* (1954) who also used *S. japonicum* antigens. These authors reported that three years earlier Saito obtained positive intradermal responses in 94 per cent of 150 known positive cases of schistosomiasis japonica and 4 per cent false positive in 200 control individuals. Sawada *et al.* (1954) tested adult worm *S. japonicum* antigen in 1:300 and 1:1000 dilutions using 0.1 ml. injected intradermally. They also tested the protein and polysaccharide fractions made from male and female worms. However the number of persons tested was so small that no valid conclusions could be drawn.

Pesigan *et al.* (1951, 1954) undertook to use a normal saline extract with 0.3 per cent phenol of adult *S. japonicum* in a 1:1000 and 1:3000 dilution in surveys for schistosomiasis in the Philippines. In a series of 1051 stool positive cases they found that 84.1 per cent gave positive skin tests (an increase of 3 mm. in the size of the wheal was regarded as a positive test); 9.8 per cent gave a "doubtful positive" skin reaction bringing the total to 93.9 per cent.* They also found only 2.4 per cent false positives among 2258 non-exposed individuals even though 90 per cent harbored two or more species of intestinal helminths. In a third series of 150 people with such diseases as gastro-enteritis, TB, mumps, etc., only 2.66 per cent gave false positive tests. These results clearly indicate

*Throughout our series of tests all "doubtful positives" were listed as "negative."

the reliability of the intradermal tests for schistosomiasis and add further justification for the use of this test as an epidemiologic survey tool.

It is perhaps unfortunate that a greater number of helminth-free individuals were not available to the various workers as additional controls. It should be realized that this poses a real problem in countries where over 90 per cent of the population may harbor parasites. In Japan a small uninfected series of 21 American personnel were tested at scattered intervals over a period of several years with different batches of antigen. None gave positive reactions (Table I.)

Intradermal tests on bird schistosome sensitized individuals.—In view of the small numbers of false positive reactions obtained with the 1:10000 dilution of the *S. japonicum* antigen it seemed that the merthiolated-saline extract was quite specific. This was substantiated by the results secured when 51 individuals who were highly sensitized to the cercariae of the bird schistosome, *G. sturinae*, gave no positive reactions when tested intradermally with a 1:10000 dilution of this antigen (Table II). It was expected that there would have been a number of positive reactions since many antigens are only "group specific." For example, both the frog lung fluke and sheep liver fluke produce a significant number of reactions in patients with schistosomiasis (Culbertson and Rose, 1942; Hassan and Betaske, 1934; Faust, 1949; Chung *et al.*, 1955b). The difference between our results and those obtained by other investigators may be due primarily to differences in the preparation of the antigens. On the other hand, Hsü and Ameel (1956) working with human and non-human schistosomes secured only a few false positive reactions with antigen prepared in essentially the same manner as ours.

Intradermal tests as an epidemiologic tool.—In 1945 Wright *et al.* (1947) surveyed the endemic center of schistosomiasis japonica in Shizuoka Prefecture. These workers examined 155 school children from the village of Sudo in this prefecture and found 13, or 8.3 per cent infected with *S. japoni-*

cum. Five years later we examined 101 persons from Sudo of which five per cent were positive for this parasite (Ann. Hist. Rept., 1950; Anon., 1951; Ritchie *et al.* (1951, 1956). In this second survey those examined were chosen at random which may account for the difference in incidence between Wright's data and ours since they selected school children. Japanese physicians reported that they have treated fewer cases of schistosomiasis since the Sudo swamp was drained in 1942 and believe that there have been fewer exposures in recent years. Further evidence that this apparent decrease of schistosomiasis in the Numazu endemic area in Shizuoka Prefecture is real lies in the results obtained with the skin tests for schistosomiasis japonica that were carried out there (Table III).

A total of 349 individuals from four suspect villages and 121 from a "control" village (Yoshiwara), believed to lie at the western end of the old endemic area, were skin tested with a 1:10000 dilution of adult worm antigen of *S. japonicum*. A total of 144 out of 349 from the suspect villages gave a positive reaction while none of the 121 controls reacted positively (Ann. Hist. Rept. 1950, Ritchie *et al.* 1951, 1956). These figures were markedly higher than those obtained by stool examination from the same communities (Table III). The significant point is that the highest incidence occurred in the oldest age groups. In the four suspect villages only 10 were positive in the 0-15 year group while 35 reacted in the 16-30 group and 99 among those who were over 31 years of age. These differences suggest: (1) a decline in exposure in recent decades resulting in many inapparent infections; (2) a decrease in egg output associated with nearly exhausted infections in the older age groups. These findings appear to justify the use of the skin test as an epidemiologic tool (Ritchie *et al.*, 1956).

A more extensive application of the intradermal test was its use by Hsü *et al.* (1955) in determining the status of schistosomiasis in the endemic area of central Taiwan. Whereas eggs could be recovered from ani-

males, none were obtained from three stools on each of 4197 persons. A group of 2562 persons from six villages of the same area were then skin tested by one of us (LSR) and 8.4 per cent gave a positive reaction, with a range of 5.6 to 15.6 per cent for the several villages. Again the validity of the test was checked by tests made outside the endemic area. Thus with minimal time and effort, an initial step was taken in demonstrating that schistosomiasis in Taiwan is distinctive from that of other Asiatic countries, and although infections occur, they are abortive.

Intradermal tests with PARAGONIMUS WESTERMANI antigen.—The results secured with antigen made from adult worms of *P. westermani* initially were reported in the Annual Historical Report of the 406 Medical General Laboratory (1950; 1951; Anon., 1951) and by Ritchie *et al.* (1951). Approximately 95 per cent of the paragonimiasis cases gave positive reactions with an inoculation of 0.01 ml. of a 1:10000 dilution of whole worm antigen. No significance could be attached to the minimal differences resulting from the reactions secured with the three dilutions of the merthiolated (1:7500) saline antigen (1:5000, 1:10000 and 1:20000). However, the wheals were slightly smaller in the 1:20000 dilution when compared with those secured with the less dilute antigen. For this reason the 1:10000 was selected for further testing (Table IV) even though the 1:20000 yielded slightly better results.

Miyake and Oike (1951) and Oike *et al.* (1951) carried on surveys for paragonimiasis in the endemic areas of Kochi and Ehime Prefectures in Japan, using a portable X-ray. In Kochi only the sputum was examined but in the Ehime survey intradermal skin tests were carried out on 135 persons in addition to the examination of sputum. There were 26 positives in this series of 135 persons who were skin tested; however, there is no mention made of false positive reactions. Six persons also had a positive sputum. Apparently no stool examinations were carried out, even though it has been shown that the AMS III is a useful

tool for the detection of paragonimiasis (Ann. Hist. Rept. 1949; Anon., 1951; Komiya and Yokogawa, 1954). The results obtained by Oike *et al.* (1951) also indicate the usefulness of this skin test in an epidemiologic survey.

Chung *et al.* (1955a) used whole worm antigen of *P. westermani* in testing 13 known positives and 35 controls. For the intradermal test 0.1 ml of a 1:250 solution was used as well as a 1:5000 dilution. A maximum reaction occurred with both antigens in 15 minutes. All 13 gave positive skin tests while 15 of 21 controls were negative; 5 others gave a "modified reaction" and one (who had schistosomiasis) a false positive. How the remaining controls reacted is not clear. Criteria for a positive test consisted of an immediate wheal from 1.0×1.4 cm. to 2.5×4.0 cm. with pseudopodia, erythema and itching. A reaction was considered to be negative if the wheal was less than 1 cm. and if there were no pseudopodia, redness or pruitus. Such criteria differed markedly from ours where only 0.01 ml. was injected and a 3 mm. increase in size of the wheal as compared with the original size and the control was considered a positive reaction. It seems probable that with the stronger antigen more false positives would be encountered.

Chung, Hoü, *et al.* (1956) stress the role of the intradermal test as a "convenient and fairly reliable procedure for screening paragonimiasis cases in epidemiological surveys." We agree with this and feel that our series of known positives substantiates such a statement.

Intradermal tests with CLONORCHIS SINENSIS antigen.—No explanation is at hand to interpret the unsatisfactory results obtained with antigen of *C. sinensis*. The techniques used were the same as for making the other antigens and the methods of testing were identical. Furthermore, the same group of individuals carried out all of these tests. Hence the variables were minimal. In this connection it is worthy of note that Chung, Weng, *et al.* (1955b) secured false positive reactions in two clonorchiasis patients who were tested with antigens of *P. westermani*, *S. japonicum*

and *F. hepatica* in addition to *C. sinensis*. It is possible that more refined methods of antigen extraction would result in the production of a more sensitive antigen.

Cross reactions with SCHISTOSOMA, PARAGONIMUS and CLONORCHIS antigens.—As seen from Table II the merthiolated saline extract of a 1:10000 dilutions of *S. japonicum*, *P. westermani* and *C. sinensis* antigens were checked for cross reactions with each other. All of the individuals tested carried the common intestinal helminths such as ascaris, whipworm, hookworm, *Trichostrongylus* or pinworms. Both the schistosome and *Paragonimus* antigens yielded only 4 to 5 per cent false positives when checked against individuals harboring the other two parasites. However, the *C. sinensis* antigen again proved to be unreliable as it gave 8.7 and 44.7 per cent false positives in known cases of schistosomiasis japonica and paragonimiasis respectively. This same antigen only detected 64.7 per cent of these known to be positive for *Clonorchis*. It would appear from these data and the others previously presented that the schistosome and *Paragonimus* antigens may be used to help detect infections either in the laboratory, hospital or on epidemiologic surveys but that the *Clonorchis sinensis* antigen is unreliable and cannot be recommended until further refinements are made in its preparation.

Chung, Weng *et al.* (1955b) also studied cross reactions in a small series of 29 persons infected as follows: 18 with paragonimiasis, 3 with schistosomiasis japonica and 2 with clonorchiasis; five normals served as controls. Again these workers utilized a more concentrated antigen than we did as they made a four per cent extract in saline which was then diluted to 1:250 for testing. All were tested with whole worm antigen of *P. westermani*, *S. japonicum*, *C. sinensis* and *Fasciola hepatica*. All persons with paragonimiasis reacted positively to antigens made from adult *F. hepatica* and *C. sinensis*; 6 of the 18 reacted to the *S. japonicum* antigen. The *Paragonimus* antigen produced a slightly larger wheal, but all gave positive reactions. The 3 patients with schistosomiasis japonica

and the 2 with clonorchiasis reacted positively to all four antigens. These results suggest that in the dilutions used by these workers, these antigens must be expected to yield a considerable number of false positive reactions. In view of our relatively low percentage of cross reactions (Table II), it would seem desirable that more work be done on this aspect of the problem using a more dilute antigen. Even in spite of these false positive reactions Chung, Hoü *et al.* (1956) seem to feel that the skin test for paragonimiasis at least has a role in epidemiologic surveys, a view in which we concur if used at a greater dilution. It seems probably that adult *P. westermani* antigen, used in adequate dilutions, will provide as useful an epidemiologic tool as the *S. japonicum* antigen has already proven to be.

SUMMARY AND CONCLUSIONS

Antigens prepared from *S. japonicum*, *P. westermani*, and *Clonorchis sinensis* were tested on known positives and negatives for schistosomiasis japonica, paragonimiasis and clonorchiasis. The following points may be made:

(1) All antigens were prepared as saline extracts (unless otherwise specified) and were preserved with merthiolate (1:7500). Each was tested by injecting 0.01 ml. intradermally at dilutions of 1:5000, 1:10000 and 1:20000 against proven positives and negatives. Both groups harbored the same species of common intestinal helminths and protozoa. Positive reactions consisted of a 3 mm. increase of the antigenic wheal over its original measurement and also over the control wheal when read at the end of 15 minutes.

(2) In the case of schistosomiasis three types of antigen were tested: (a) cercarial, (b) adult worms extracted with saline, and (c) adult worms extracted with alcohol. Neither the cercarial antigen nor the alcoholic fraction gave as good results as did that extracted with saline.

(3) The saline extracted adult worm antigen of *S. japonicum* was used at a 1:10000 dilution in the epidemiologic survey of Shizuoka Prefecture, Japan where schisto-

miasis appeared to be on the decrease; 470 persons from five communities were skin tested for schistosomiasis. More positive reactions were encountered in the older age groups than in the 0-15 and 16-30 year groups, thus substantiating the hypothesis that schistosomiasis had been more prevalent in the past and that the disease was dying out.

(4) A total of 113 persons passing eggs of *P. westermani* were tested intradermally for paragonimiasis along with 60 negative controls. Both groups harbored common intestinal worms and protozoa. Of these 108, or 95.6 per cent, gave a positive reaction while none of the 60 negative controls responded.

(5) A total of 21 Americans negative for helminths were given intradermal tests with a saline extract of a 1:10000 dilution of the *S. japonicum* and *P. westermani* antigens. No positive reactions occurred.

(6) Only 64.7 per cent of 136 individuals passing eggs of *C. sinensis* yielded a positive reaction while 17.3 per cent of 58 negative for *C. sinensis* gave false positive responses.

(7) Cross reaction studies were carried on with the 1:10000 dilution of the three test antigens. Between 4 and 5.1 per cent false positives were found with the *S. japonicum* and *P. westermani* antigens respectively; the figures with the *C. sinensis* antigen were 8.7 and 44.7 per cent for schistosomiasis and paragonimiasis respectively clearly demonstrating the unreliability of this particular antigen for the detection of clonorchiasis.

(8) No cross reaction was encountered in bird-schistosome sensitized persons who were tested with *S. japonicum* antigen.

ACKNOWLEDGEMENTS

Especially thanks are due to the commanding officers of the 406 Medical General Laboratory, Cols. W. D. Tigertt and R. L. Hurlinghorst, for their encouragement and help as well as to Brig. General C. F. Sams, P. H. and W., SCAP, for his aid. We are further indebted to R. Kobayashi and Y. Komiya of the National Institute of Health and to the Kitasato Institute for their help in this project.

Especially thanks are due Dr. E. H. Kaufman for preparing the alcohol fraction of the *S. japonicum* antigen. Many other officials, staff and civilians too numerous to mention deserve our heartfelt thanks for making this study possible.

REFERENCES CITED

- Ando, R. Does paragonimiasis give rise to immunity against this disease? Iji Shinbun (Medical News) No. 1070, pp. 591-610. 1921a. (Japanese Text.)
- . On the complement fixation reaction in the human paragonimiasis cases and in the experimental animals. Nihon Biseibutsu-gakkai Zasshi (Jap. J. Microbiological Soc.) 15(8):391-404. 1921b. (Japanese Text.)
- . On the hemolytic action of *Paragonimus westermani* Chugai Ijishinpo (Chugai Medical News) No. 990, pp. 708-724. 1921c. (Japanese Text.)
- . Supplement I to the Studies on *Paragonimus westermani*. On the hemolytic action of the lung fluke II. Does paragonimiasis give rise to immunity against this disease? Niho Byori-gakkai Zasshi (Jap. J. Path. Soc.) 11:450-451. 1921d. (Japanese Text.)
- Annual Historical Report. 406 Medical General Laboratory. 160 pp. Tokyo. 1948.
- . 406 Medical General Laboratory. 200 pp. Tokyo. 1949.
- . 406 Medical General Laboratory. 266 pp. Tokyo. 1950.
- . 406 Medical General Laboratory. 304 pp. Tokyo. 1951.
- . 406 Medical General Laboratory. 312 pp. Tokyo. 1952.
- Anonymous. Parasitological studies in the Far East. XIV. Summary of the common intestinal and blood parasites of the Japanese. Jap. Logistical command. Bull. No. 4, 51 pp. APO 500. 1951.
- Bozicevich, J. and Hoyem, H. M. Intradermal and serological tests in patients with schistosomiasis japonica. Natl. Inst. Hl. Bull. 189:199-212. 1947.
- . Immunological diagnosis of parasitic diseases. In: Parasitic infection in man, H. Most, ed., pp. 37-55. 1951.
- Chung, H., Weng, H., and Hou, T.: Immuno-diagnosis and chemotherapy of clonorchiasis sinensis with special reference to the efficacy of chloroquine including a note on the negative effect of oxychloroquine. Chinese Med. J., 73:1-14, 1955.
- Chung, H., Weng, H., Hou, T. and Ho, L. The value of complement-fixation test and intradermal test in the diagnosis of paragonimiasis. Chinese Med. J. 73:47-54. 1955a. (Trop. Dis. Bull. 53:77-78. 1956.)
- . Cross intradermal reactions of patients

with paragonimiasis, clonorchiasis and schistosomiasis to different trematode antigens and their clinical significance. Chinese Med. J. 73:368-378. 1955b. (Trop. Dis. Bull. 53:1449, 1956.)

Chung, H., Hou, T., Li, T., Sheh, M. and Yang, C. Recent advances in diagnosis of paragonimiasis. Chinese Med. J. 74:1-16. 1956. (Trop. Dis. Bull. 53:1361, 1956.)

Culbertson, J. T. and Rose, H. M. Skin tests in schistosomiasis with antigen from *Pneumoneces medioplexus*. Am. J. Hyg. 36:311-315. 1942.

Faust, E. C. Human Helminthology. 3rd ed. 744 pp. Lea and Febiger. Phila. 1949.

Hassan, A. and Betashe, M. *Fasciola gigantica*, an antigen for the skin reaction in human schistosomiasis. J. Egypt. Med. Assoc. 17:991-993. 1934.

Hosokawa, S., Miura, Y. and Miyazato, T. Skin reaction of human and dog paragonimiasis and their patho-histological studies. J. Japanese Path. Assoc. 41:1-3. 1952.

Hunter, G. W., III, Hodges, E. P., Jahnes, W. G., Diamond, L. S. and Ingalls, J. W. Studies on schistosomiasis II. Summary of further studies on methods of recovering eggs of *S. japonicum* from stools. Bull. U. S. Army Med., Dept. 8:128-131. 1948.

Hunter, G. W., III, Ritchie, L. S., Pan, C., Lin, S., Yokogawa, M. and Sigiura, S. Skin testing for schistosomiasis japonica with antigen from adult worms and cercariae of *S. japonicum*. J. Parasit. (Suppl.) 36:12. 1950.

Hunter, G. W., III, Ritchie, L. S. and Otori, Y. A comparison of the infectivity of *Schistosoma japonicum* occurring in Japan for *Oncomelania nosophora* and *Oncomelania formosana*. J. Parasit., 38:42. 1952.

Hunter, G. W., III, Ingalls, J. W. and Cohen, M. G. Comparison of methods for recovery of eggs of *Schistosoma japonicum* from feces. Am. J. Clin. Path. 16:721-724. 1946.

Hunter, G. W., III, Ritchie, L. S., Pan, C., Yokogawa, M. and Altamirano, M. R. Parasitological studies in the Far East IX. An epidemiologic survey of Shikoku Island, Japan. Jap. J. Med. Sci., and Biol. 6:44-55. 1953.

Hsü, H. F., Li Hsü, S. Y. and Ritchie, L. S. Epidemiological study on schistosomiasis japonica in Formosa. Am. J. Trop. Med. and Hyg. 4:1042-1048. 1955.

Hsü, H. F. and Ameel, D. J. Intradermal reactions to *Schistosoma japonicum* and *S. mansoni* antigens in schistosome dermatitis cases. Am. J. Trop. Med. and Hyg. 5:841-846. 1956.

Katkin, B. and Most, H. Cercarial antigen (*S. mansoni*) skin test in diagnosis and management of schistosomiasis japonica. Bull. U. S. Army Med. Dept. 6:613-616. 1946.

Komiya, Y. and Yokogawa, M. The recovery of eggs of paragonimiasis patients by the AMS III centrifuging technic. Japan. J. Med. Sci. and Biol.

6:207-211. 1954.

Miyake, H. and Oike, K. The mass chest survey of the lung-distomiasis (Part 1). Shikoku Acta Med. 2:10-15. 1951. (English summary.)

Oike, K., Asoda, Y. and Sirakawa, T. Mass chest survey of paragonimiasis (Part 2). Shikoku Acta Med. 2:304-306. 1951. (English summary.)

Okabe, K. and Yamaguchi, T. Immunological studies on schistosomiasis japonica (Report I). J. Kurume Med. Assoc. 15:139-143. 1952. (Japanese Text.)

———. Immunological studies on schistosomiasis japonica. II. J. Kurume Med. Assoc. 15:663-664. 1953.

Okabe, K., Koga, Y., Shibus, H. and Matsuee. Immunological studies on schistosomiasis japonica III. Intradermal and precipitin tests for schistosomiasis japonica. Kurume Med. J. 1:85-89. 1954.

Oliver-Gonzales, J. and Pratt, C. K. Skin and precipitin reactions to antigens from the cercariae and adults of *Schistosoma mansoni*. Puerto Rico J. Pub. Hl. and Trop. Med. Dec. 2:242-248. 1944.

———. Intradermal reactions to schistosome and filaria antigens in patients before and after treatment of the parasitic infections. Am. J. Trop. Med. & Hyg. 2:79-84. 1953.

Pan, C. and Hunter, G. W., III. A modified perfusion technique for the recovery of schistosomes. J. Lab. and Clin. Med. 37:815-816. 1951.

Pan, C., Kaufman, E. H. and Hunter, G. W., III. A technique for infecting small mammals with *Schistosoma japonicum*. J. Lab. and Clin. Med. 37:817-819. 1951.

Pesigan, T. P., Putong, P. B., Garcia, E. G. and Millar, C. A. Intradermal test for schistosomiasis japonica (Preliminary Report). J. Phil. Med. Assoc. 27:212-219. 1951.

Pesigan, T. P., Garcia, E. G., Banzon, T. C., Beltran, A. M., Santos, A. T., Anoves, M., and Basaca-Sevilla, V. Further studies on intradermal test in schistosomiasis japonica. J. Phil. Med. Assoc., 30:14-22. 1954.

Ritchie, L. S., Hunter, G. W., III, Freytag, R. E., Pan, C., and Yokogawa, M. An epidemiologic survey of Shizuoka Prefecture, Japan. J. Parasit. (Suppl.) 37:17-18. 1951.

———. Parasitological studies in the Far East. XV. An epidemiologic survey of Shizuoka Prefecture, Japan. Jap. J. Med. Sci. and Biol. 9:165-177. 1956.

Sawada, T., Suzuki, I., Oka, T. and Sano, M. Studies on the diagnosis of schistosomiasis japonica. Gumma J. Med. Sci. 4:39-47. 1954.

Wright, W. H., Bozicevich, J., Brady, F. J. and Bauman, P. M. The diagnosis of schistosomiasis japonica V. The diagnosis of schistosomiasis japonica by means of intradermal and serological tests. Am. J. Hyg. 45:150-163. 1947.

Yokogawa, S., Cort, W. W. and Yokogawa, M. *Paragonimus* and paragonimiasis (MS).

Recent Trends in Prevention and Care of Casualties of War*

By

COLONEL BENNIE A. MOXNESS, U. S. Air Force (MC)

THE problem of man's struggle for survival against the hazards of war is one that has existed throughout recorded history. Medically speaking, the early historical aspects of the prevention and care of war disabilities have been considered in two recent papers by the writer.^{1,2} It is, therefore, proposed to begin this paper with conditions existent in the early World War II era.

The outbreak of World War II required a rapid expansion of all military programs, including those in the medical preventive and treatment field. The early part of World War II found that the principal facilities available for medical care of the military disabled in addition to those of the military services, were in the Veterans' Administration. Many laws regarding the care and treatment of the war disabled were in existence prior to the actual outbreak of this war.

The former medical director³ of the Veterans' Administration stated that the Administration was in much better position to care for any casualties at the beginning of World War II than it was at the end of World War I. He stated that the Veterans' Administration expected to face its full share of responsibilities in offering prompt high grade treatment to this new group of beneficiaries.

The rapid expansion of the military services brought on many problems for the medical services. These problems in the early stages of the war involved matters such as procurement of qualified personnel, establishment of medical installations, and the supply and maintenance of these installations; this in order to provide high grade medical care for any eventualities of the war.

*HONORABLE MENTION in Sir Henry Wellcome Medal and Prize Essay Contest 1957.

Present Address: 4903 Chevy Chase Blvd., Chevy Chase 15, Md.

INTERNATIONAL ASPECTS

Since antiquity⁵ the world has been confronted with the aftermaths of war in the solution of the refugee and resettlement problem. The 20th century has introduced new social forces that critically narrowed the historical avenues of escape in the course of a single generation. It is the opinion of our time that the age of the Atlantic Charter and the universal declaration of the human rights is also the century of the homeless man. Never have so many human beings been lost in the complications of the World Community, so that the community of exiles now confronts the Community of Nations.

A study of the refugee in our time may shed light upon the fate of human rights in general, for the refugee in his extremity, perhaps more than any other man, stands alone in his humility. The refugee problem⁶ has been more evident to governments since the formation of the League of Nations. It is a problem which has so far been dealt with largely by a system of temporary agencies, rather than as a consistent attempt at a long-range plan.

Wilson⁶ (1949) stated that the humanities had not been forgotten in war; that in the period shortly before 1949, four Geneva Convention treaties were signed by the United States. Part of these contained the obligation for the protection of civilian persons in time of war. This introduced new factors in war planning not fully appreciated up to that time.

One would, therefore, expect to find public health as significant as terrain. Wilson believed that the international movements such as sponsored by the Red Cross societies offered the greatest hope to individuals for their own personal welfare and dignity; that any soldier in World War II who had opportunity to observe our allies' and our own

Red Cross war activities devoted to distressed civilians could attest to the good work of the Red Cross.

The International Red Cross Committee⁷ which met 14 April 1947 at Geneva was grateful for the opportunity to participate in a work which might mitigate suffering in the event of future wars. The Diplomatic Conference held at Geneva⁸ in 1949 for the purpose of revising parts of the convention of 1929 dealt with the relief of the sick and wounded of armies in the field, treatment of prisoners of war, the Hague Convention of 1907 on maritime warfare, and the convention for protection of civilians in time of war.

The 1949 Geneva Conference recommended that in disputes relative to the interpretation of the conventions, the parties concerned endeavor to refer these disputes to the International Court of Justice. The Convention realized the difficulty of agreements during hostilities; however, it recommended that the parties to the conflict make arrangements, where possible, for relieving retained personnel, and that the International Committee of the Red Cross prepare a model agreement regarding percentage and distribution of retained personnel. The Red Cross societies, due to difficulties encountered by medical personnel in providing proper identification, recommended the adoption of badges and identity cards for medical personnel. The societies cautioned all that the use of such emblem be within limits prescribed by the Convention.

Inter-cross (8) meetings were held at Geneva several times during the Korean conflict. In 1952 these meetings considered the problems of radio news and a free press in all democratic countries. Also, these meetings discussed the Korean prisoner of war situation, and numerous other problems such as medical supplies and facilities for the internees. Red Cross societies on both sides of the Korean conflict which took part in the common problems of assistance to and repatriation of prisoners of war were welcomed by Inter-cross. The issue of resolving the alleged use of bacterial weapons in Korea

necessitated much investigation by Inter-cross.

This issue evidently remained unfulfilled for some time in so far as appointment of a commission of experts to conduct the inquiry was concerned. Evidently Korea⁹ was not a party or signatory to International Red Cross agreements, but it was the opinion of International Red Cross that this should not prevent the use of humanitarian principles in protecting war veterans as well as prisoners of war. These humanitarian principles provided as a minimum requirement that the parties to the conflict avoid (a) violence to life and person; (b) taking of hostages; (c) outrages on personal dignity; (d) the passing of sentences and carrying out of executions without previous recourse to regularly constituted courts, and so forth, and that "the wounded and sick shall be collected and cared for."

The President of Inter-cross had previously assured the American authorities, as well as other authorities, of its readiness to act on various occasions for humanitarian interests of Korean war victims, according to its tradition as a neutral intermediary Red Cross spirit.

The multitude of International organizations created in Europe following World War II (Robertson),¹⁰ was largely because of the many complex problems facing these countries which might be solved by international action. Governments traditionally are responsible for the military security and the economic and social well-being of their people. They now realize that their well-being and security may be dependent on events taking place beyond their borders and over which they many have little control. In the military field no one country could increase its security alone, so that the basic problem in international politics is how governments can discharge their responsibilities and control those factors upon which security and prosperity are based.

LEGISLATIVE ASPECTS

A review of legislation in the United States looking toward rehabilitation of

soldiers reveals that many laws were introduced in the World War II era.⁹

Concern was expressed regarding a manpower shortage and problems incident to the impending return of disabled servicemen and women from the armed services. This concern served to focus public interest in the problem of rehabilitation. Much of the legislation may have been hasty, but the public interest and intent behind it was very valid. Therefore, the first problem faced in the legislation was a clear statement of intent. Interpretation will depend mostly on the language of an act, for few people will have access to or interest to refer back to the hearings or debates for guidance. Probably no less important in the trend of a legislative rehabilitation program of the disabled is its bureaucratic nature.⁹ This trend may give a rehabilitation agency a monopoly on power and be a subject of criticism of the manner in which the agency is administered, and leads to the following basic considerations: "Power to make decisions of final purport and effect in the lives of others should always be subject to review, at least on appeal, by persons familiar with the disability involved."⁸

In the field of rehabilitation, continuous pressure on official employees from various vigorous influences may lead eventually to limitation of service. Hence more thought needs to be given to selection of cases, more effort to inform the public on the program, and in communities with local voluntary groups, enhance public interest in the problem.

Legislation in the field of disposition and rehabilitation of the military disabled must recognize that the functions of a military medical service not only include treatment of the sick and wounded but also procedures which govern their medical disposition. What is desired is a procedure that is efficient, fair and equitable and in accordance with existing legislation,¹¹ and one that will retain the proper medical perspective in the province of medical fitness and disability.

Specifically in the World War II era and up until 11 October 1949, the law provided

that in case of an officer, or in case of an enlisted man with over 20 years service, he might be eligible for disability retirement. This eligibility for disability retirement was in general based upon a Medical Disposition Board finding the individual permanently incapacitated for the performance of active military service, and a similar finding by a retirement board; concurrence by the Surgeon General, and approval by the Secretary of the service concerned generally completed the case.

Experience since World War II has indicated that this system of retirement was expensive and somewhat unfair;¹¹ thus, eventually new legislation was secured. The new legislation was known as the Career Compensation Act of 1949, lastly identified as Title 10, U. S. Code, Chapter 61. This legislation became effective 1 October 1949 and in general was devised to overhaul the then existing retirement system so that it would apply alike to officers and enlisted men of the various components of the Armed Services. The Act provided in general that the degree of disability or the manner in which it interfered with earning one's livelihood would be the principal basis for pay determination. Briefly, the medical requirement of the law is that a member of the Armed Services be determined unfit to perform the duties of his grade by reason of physical disability. The interpretation of the term "unfit" was left to the various military services concerned.

It now appears that with over seven years experience, the Career Compensation Act of 1949 may require several changes. It is probable, however, that a general lack of familiarity with applicability of the law to the field of military physical standards may be a factor. To more effectively implement the law and recommend constructive changes in the process of disability evaluation is a matter beyond the scope of this paper.

Equally as important as disability separation is the standard of physical fitness for retention in the active military service. This standard is necessarily more liberal than that set up for entry into the military service.

Individual retainability of members with minor physical defects is determined by factors such as the defect being static, and not liable to undue aggravation by military service; that the individual is properly motivated, and has a usable specialty in the service.

MEDICAL AND SURGICAL ASPECTS

The medical officer¹² in the various services of the Department of Defense is greatly helped in carrying out his duties by an understanding of the organization of the service to which he is assigned. An experienced medical officer is essential to the successful planning and conduct of military operations. Good medical care during training, movement, and especially in battle, has a marked influence on the morale and willingness of troops to accept the hazards of combat. Important concerns of military medicine are the maintenance of health and fighting efficiency; a problem not too difficult in peacetime, but in battle the picture is changed, for battle is designed to maim and kill. The primitive conditions of life in combat, such as fear and fatigue, predispose to injury and disease. The agencies existent in peacetime may no longer be available to guard the individuals' health and welfare.

The objective of all hospitalization in combat is to return a maximum number of casualties to full duty within a minimum period of time.¹³ These trained individuals are the most valuable replacements. Unfortunately, a certain number of these casualties will not recover sufficiently to be returned to duty; their disposition will then be a matter of further medical processing and evacuation. In combat, emphasis is on the treatment of casualties commonly encountered in military practice, rather than on rare or unusual cases.

Planning and evaluation of surgical care of the wounded in modern warfare requires a broad background of statistical information often not possessed by the surgeon trained in civilian medicine, according to Beebe and DeBaakey.¹³ These authors collaborated with the Army Surgeon General's Office on World War II statistics of the

incidence, mortality, evacuation and hospitalization of battle casualties. They considered medical statistics of war to be crude and inexact, but stated that their book is a compilation of whatever medical judgment they could command.

The technology of modern war is fluid so that the problems involved in medical logistics must remain fluid. The aim is to provide for the surgical planner information on which to devise plans for the care of battle casualties, in terms of what may only have been partly recognizable in the past. Each war has its own surgical problems, but certain facts stand out to aid the surgeon in any planned military action.¹³ Some of these facts are: (a) that the distribution of hits among the several body regions appears relatively constant, even with much variance in the military situation; (b) that the casualty rate for a particular unit is variable and requires many facts about a particular military situation; (c) that for more than a century warfare has presented the surgeon with injuries somewhat similar in nature even to the large-scale aerial warfare of World War II, except that the incidence of burns in bombed cities has increased proportionately; (d) that the end of World War II marked the end of an era of military surgery since it introduced the implications of atomic warfare.

In wound surgery, selective evacuation and distribution of battle casualties is of potential benefit. Early wound surgery returns wounded combat personnel to duty status where possible, and contributes to reduction of disability among personnel whose injuries are such as to preclude further military service.

The problem of atomic attack is important for future medical planning.¹³ This problem requires public interest and support at all times if it is to be intelligently planned for. To warrant public confidence, skilled medical services should be available when required for treatment of illness and injury brought on by warfare. This confidence is strengthened when adequate liaison and planning as in conjunction with National Civil Defense is utilized.

PREVENTIVE ASPECTS

The Royal Society of Medicine¹⁴ sponsored Interallied conferences on war medicine in the period 1942-45, and thus seized upon an invaluable opportunity to spread the good features of war medicine. They also served not only to improve the care of war casualties but also to heighten the morale of medical officers.

These conferences indicated progress in such matters as organization of Field Units to meet changed situations, the use of blood transfusions, transportation of casualties, and suppressive treatment of malaria. They served to promote psychological methods of selection of personnel and furthered even closer cooperation among the medical services of the land, sea, and air forces.

The problem of stress in military personnel is important, for, as Thompson¹⁴ has stated, the many varying and continuing stresses for the infantryman are as great as those experienced in any other branch of service. He believed that under combat conditions purely physical causative and resultant factors could not be separated from emotional and psychological factors. The two were considered mutually contributing to each other. The adjustments away from home and anticipated future danger may promote considerable emotional tension in the foot soldier. The various combat settings, as from winter mountain fighting in Europe to that of Guadalcanal in the tropics, suggested that fatigue should receive more serious consideration. The Guadalcanal and other studies showed that the best soldiers will break if the stress is long and severe enough. More definite rest periods were instituted (Tidy) but they were still dependent on the tactical situation.

Thompson believed that battalions should have a day or two of rest about every 7-10 days, near the front but at a location where there is a chance of some sleep, some hot food, and relief from the tension of constant vigilance. He further believed that Divisions should have opportunity for longer rest periods, every 4-6 weeks, further away from actual combat areas. More recently, Colonel

Glass²⁴ (1957) brought the problem of stress in relation to duration of combat effectiveness to the attention of medical personnel. His presentation referred to studies on the epidemiology of mental illness in troops during warfare.

Dudley¹⁴ of the Royal Navy found it had to be relearned many times in war that the preservation of bodily health and mental health is as important as guns in winning battles. He considered the most important medical lesson learned in World War II was that "executive and combat officers must be instructed that enforcement of measures of hygiene to preserve bodily health, morale, and fighting efficiency of their troops is as important as is any other military duty." In conclusion, Dudley stressed that endeavor must be made to implement this principle of war in the intervals between wars, so as to avoid the necessity of relearning the importance of practical hygiene in each war. Middleton¹⁴ in 1945 stated that in the European Theatre of Operations in World War II it was found for the first time in the history of warfare that there were more surgical than medical casualties incurred.

The RAF¹⁴ in summing up World War II preventive medicine (aviation Aspects) found that service trials of equipment and devices for aviators are essential. The men must be convinced of the need for the devices. There must be the utmost liaison and teamwork between scientists and industrialists if maximum progress and efficiency are to be achieved. Ellery¹⁵ in 1945 stated that "war and medicine have walked hand in hand down the spattered pages of history. The impulse to kill has always been attended by the desire to save; and the stalwarts of destruction are rivaled only by the heroes of healing. Surgery was born on the battlefield, and medicine in the tents of the afflicted."

War releases the emotions of the people, not only for the men who put on the uniform and carry the weapons of death, but also for the civilians. This tempestuous release of longstanding hates and fears is not an inspiring spectacle. No one will deny that there are social, economic, and political aspects of the

cause of war, but evidently all these are bound up in the psychology of the individual.

Many psychological needs are as important as economic needs, though often less obvious. In later years war has introduced new difficulties and complications in the sphere of mental adjustment. This has given the psychiatrist greater opportunities for study and utilization of his knowledge. The psychiatrist realizes that total war brings many new psychiatric problems both to combatants and noncombatants and diverts human energy and ingenuity from the service of man to his destruction.

If the selection of men for combat service¹⁵ were carried out according to the scriptural simplicity by which many are called and few are chosen, the prophylactic problem of mental health would be easily solved. Since the demands of military strategy must take precedence over the likes and dislikes of the uniformed member, the problem of prevention introduces new hazards in war. The unfit may be unable to endure hardship. Mental hygiene principles, valuable as they are in prophylaxis, cannot always be applied in combat areas due to unforeseen interruption in plans.

One cannot¹⁵ just take men indiscriminately from office, factory, farm or school, train them in the methods of modern warfare, physically harden them, remove them from their civic and family affairs, and then expect them to resume their old positions or places in society just as if they had been on a two-weeks holiday. The experience of war often does something to their minds which may make civilian readjustment an arduous and uncertain procedure.

Ellery considered there was nothing wrong with Christ's plan for equable and honest living, except that no one ever discovered a way to introduce it and make it work. In other words, one reads of this and that, but finds no guiding light. Kardiner and Spiegel¹⁶ mention neurosis had received little attention prior to World War I, but that World War II made the world neurosis-minded. The neuroses were then studied with more care than ever and the literature on the subject em-

braces a wide range of topics. The explanation of the neurosis on a functional basis came largely from the influence of psychoanalysis, for in the period 1921-41 opportunity was afforded for study of the chronic neuroses of World War I era.

Kradiner and Spiegel considered neurotic breaks that occurred in the World War II era were approached with a knowledge of what had been learned from similar groups in World War I. Perhaps this plan avoided many unnecessary mistakes in accepting the challenge that the returning World War II veterans presented. A difference between the two world wars,¹⁶ even though the reasons were difficult to obtain, is that there was an extreme drop in the hysterical abasias, paralysis and epileptiform types of traumatic neuroses in World War II. The psychiatric orientation of Army personnel might be one reason; soldiers were oriented in the manifestations of fear and anxiety; they were thus acquainted with the phenomenon and more freedom existed in its expression.

Even with an organization¹⁶ effective in treating the effects of war stress and neurotic illness, a considerable number of cases diagnosed as traumatic neuroses did not immediately yield to treatment. Those not yielding to treatment were considered for rehabilitation by seeking to give them work suitable for their diminished abilities. An alternative of approaching the neuroses problem was the compensation of the disabled veteran by either the lump sum or income method.

REHABILITATION ASPECTS

The responsibility of society for the disabled has long been accepted. Various means of meeting that responsibility have been used.⁴ It required the enormous numbers, types and degrees of disablement such as have been the result of modern war to stimulate a new interest in the line of actual rehabilitation of the injured and disabled. In early World War II the flow of severe casualties¹⁷ to the United States from the various theatres of war found the Veterans' Administration insufficiently staffed and equipped to provide intensive rehabilitation

services for patients who incurred severe physical disabilities. This situation required retention of patients in military hospitals who because of their disability could not be returned to active military service.

An adequate rehabilitation program apparently was stimulated by a letter from the President, dated 4 December 1944, to the Secretary of War, in which he stated:¹⁷ "I wish you would issue instructions to the effect that it should be the responsibility of the military authorities to insure that no oversea casualty is discharged from the Armed Forces until he has received the maximum benefits of hospitalization and convalescent facilities, which must include physical and psychological rehabilitation, vocational guidance, prevocational training, and resocialization." This letter established the rehabilitation programs, and when they had served their usefulness they were gradually curtailed. At the end of World War II, patients still in need of rehabilitation were transferred to the Veterans' Administration, which had by that time developed an outstanding rehabilitation program of its own.

Much of the credit for⁴ organizing a program of rehabilitation of those who lost their sight in World War II goes to the Army. A program was first introduced in 1944 with the establishment of a training center for the blind at Old Farms convalescent center. Following this success, civilian rehabilitation centers were established. Rehabilitation of the blind provided for their re-entry into the community on terms of approaching equality with those in a sighted society. All rehabilitation aims at returning the injured and wounded, including the blinded, to useful places in society.

The Committee of Veterans' Services (1950) believed that one of the primary problems for the Veterans' Administration in the future would be that of chronic disease in an aging population, a problem which exists for both physical and mental disease. That committee stressed the need for a dynamic, comprehensive rehabilitation program, a program that would aid the chronically ill veteran to return to a self-sufficient produc-

tive life in the community.

Ellery¹⁵ stated in evaluating psychiatric casualties of war (1945) that, having been trained in the methods of war, it was necessary to again fit them into the civil community. This requires that the individual himself be reshaped or his environment changed so that he may become accustomed to it. Both tasks may often be nearly impossible. In other words, he comes from being a hero and needed in war to become an almost forgotten individual who is expected to settle down to a peacetime occupation; yet his country was unprepared to progressively train and recondition him for a peacetime occupation and a decent living.

Psychiatric guidance is valuable in benefiting those capable of vocational and rehabilitation measures when directed at the whole man.

The problem of placement and utilization of the war-disabled was recognized early by the U. S. Government. The U. S. Civil Service Commission gained much valuable experience during World War II in administering the program of placement of the physically impaired.¹⁸ The Commission was able to use this war experience in promoting further intelligent placement of disabled veterans. The Commission also considered that a "special advantage in securing employment is one of the most fundamental benefits that the United States offers her war veterans."¹⁸ The Veterans Preference Act of 1944 provided numerous benefits to veterans but it did not provide any directive on placement of the physically handicapped veteran. The problem was one of selective placement of the disabled to a position in which the work requirements did not exceed the individual's physical capacity.

The ARMY TIMES¹⁹ refers to the Labor Department reports, that public employment officers placed more handicapped workers in 1956 than in any previous peacetime year. Of these placements, about 125,000 or about one-half of the total were disabled veterans. Factors which helped this situation were rising labor needs, better counseling, job placement, and promotion services.

The President's committee on employment of the handicapped improved its program and stimulated more placement activity by governors and local committees. In Great Britain the Piercy Committee (1956) found the big changes that have occurred in helping the disabled since 1943 have been in increased social services.²⁰ The committee has been able to concentrate on the individual as a human being and a social unit. It recommended to hospital boards a constructive graduated program to secure full activity and to reorient the patients' outlook from that of a "disabled" individual to that of a responsible worker, since rehabilitation is a single process in which emphasis in the beginning is on medical care and eventually on work.

It recommended that several experimental centers be tried before establishing comprehensive centers where hospital and industrial rehabilitation and assessment of capacity is undertaken at one site. Voluntary effort was still necessary, but best utilized in supplementing existing services and pioneering new ventures.

PENSIONS AND RETIREMENT ASPECTS

The Huebner Foundation Studies²¹ (1955) on pensions indicated that the Veterans' Administration would likely become a significant source of Old Age income in the years ahead. Old Age pensions of course are payable only to survivors of earlier wars in which the United States has engaged. Veterans of World Wars I and II may become eligible for permanent and total disability benefits, even though the disability is non-service connected, so long as their income does not exceed certain limits.

It has been estimated²¹ (1955) that there are about 18 million World War II and Korean War veterans who are potential disability claimants upon arrival at age 65. Therefore the possibility that Old Age pensions will eventually be voted for veterans of the most recent conflicts should not be overlooked. The Huebner studies also indicate that in the regular military establishment, in addition to pension benefits available to veterans, retirement benefits are available for the regular military establishment. This type

of retirement system is non-contributory and not funded, since benefits are paid from annual appropriations.

Pensions may be considered functions of the social, political and economic forces of a nation; therefore it is appropriate to look into the problem briefly. A panel discussion at the New York Academy of Medicine in 1956 on the problem of retirement, revealed that the data available from the Federal Census Bureau indicated among other items that most older people in the United States were living outside of institutions; that in 1950 the National Office of Vital Statistics estimated the life expectancy at 65 was 14.1 years. This places an obligation on those retired for age and their advisors to help maintain their civic responsibilities by seeking a useful active life for the remaining years. The panel was also aware that the State is becoming more generous in seeking to promote a contented mind, health, and financial security of its citizens.

The responsibility still rests with the individual,²² and on this basis they believed that the individual should receive instruction beginning in youth, to consider it his patriotic duty and obligation to be as little burden as possible on paternalistic institutions, whether Federal, State or municipal.

In Great Britain the Minister of Pensions and National Defense mentions (1956) that the Government had been considering the position of the older war pensioners with serious disability stemming largely from the 1914-18 war.²³ It introduced a new allowance to the war disabled pensioners who are over 65 years old or were assessed over 40% disability. This concedes a new principle that disability becomes an increasing burden in old age.

The issue of compensation in traumatic neuroses created many embarrassing situations for the member, the Government, and medical officers following World War I.¹⁶ These embarrassing situations might not have occurred had there been better methods for the diagnosis and treatment of traumatic neurosis within the first six months after their onset, so that they would not have become so stabilized. Later studies by

Kardiner and Spiegel¹⁶ indicate the social problems in traumatic neurosis were chiefly those connected with a reduced work capacity, which means for the member concerned a complete readaptation in his way of life. They believed compensation should properly be reserved for those cases proven incurable after treatment of 2-3 years under (custodial) care before the individual learned that his illness could be used as a means of profit. Also that the lump sum compensation method worked out best in the long run for the Government, but not for those veterans permanently disabled;¹⁶ that the method of income compensation worked out to the Government's disadvantage and in the long run to the individual's disadvantage, a problem which so far remains unsolved.

CONCLUSION

An attempt has been made to show some of the recent trends in prevention and treatment of war disability that merit our consideration. Those events have largely taken place during the medical career of the author. The prevention and care of military disabilities is a dynamic issue; as military conflict becomes more complex and widespread, so does the problem of proper care and disposition of the disabled. The advent of atomic and mass destruction weapons has complicated the situation so that in overall planning not only military casualties but civilian casualties must be considered.

The problem remains with us as one that is never completely solved. Therefore the following quotation from Ellery¹⁵ appears appropriate in closing this paper:

The arguments against war are clear and cogent. Yet none has the power of prevention, and until we find more wholesome outlook for human aggression, until we discover healthier channels for pent-up emotions, until we educate and educate and educate, the promised land cannot be entered, and the children of man must remain wandering in the wilderness, vainly striving for but never achieving the goal of their quest.

REFERENCES

- ¹ Moxness, Bennie A.: Care of Disabled Veterans. U. S. Armed Forces Med. J. Vol. VI:552-558, Apr. 1955.

- ² Moxness, Bennie A.: Military Medicine and Care of the War Disabled to World War I. Mil. Med. 119:178-188, Sept. 1956.

- ³ *Rehabilitation of the War Injured*. Philosophical Library, New York. 1943.

- ⁴ Restoring the Sightless. New Engl. J. Med. 256:142. Jan. 17, 1957.

- ⁵ Sloessinger, J. G.: *The Refugee and the World Community*. Univ. of Minn., Press. 1956.

- ⁶ Wilson, W. L.: Military Responsibility in Civil Public Health—Military Civil Integration of Health Services for Disaster Control. UH 603-W75 U. S. Army Library, Pentagon, Wash., D.C., Dec. 27, 1949.

- ⁷ International Red Cross Committee. Report to the Secretary of State. U. S. Meeting of Govt. Experts at Geneva, 14 Apr., 1947.

- ⁸ Geneva Conventions of Aug. 12, 1949 for Protection of War Victims. Dep't., of State Publ. U. S. Govt. Ptg. Office, 8-22. Aug. 1950.

- ⁹ Le Comité International De La Croix-Rouge Le Conflit De Corée. Vol. I, Annex 6-8. Vol. II, 10-11, 50-51, 106-107. Geneva 1952.

- ¹⁰ Robertson, A. H.: *The Council of Europe*. Prager, New York 1956.

- ¹¹ U. S. Air Force Digest (Medical). April 1957.

- ¹² *Military Medical Manual*. The Military Serv. Publ. Co., Harrisburg, 7th Ed.

- ¹³ Beebe and DeBakey: *Battle Casualties*. Charles C Thomas, Springfield. 1952.

- ¹⁴ Inter-Allied Conferences on War Medicine, 1942-45, Royal Society of Medicine. Staples Press, Ltd. 1947. Preface: 238-241, 485-490, 492, 523-524.

- ¹⁵ Ellery: *Psychiatric Aspects of Modern War*. 1945. Reed and Harris, Melbourne.

- ¹⁶ Kardiner and Spiegel: *War Stress and Neurotic Illness*, 2nd Ed. 1947. Hoeber, Inc. 408-413.

- ¹⁷ Committee on Veterans Medical Services: Report to the President. U. S. Gov't. Printing Off. Sept. 1950.

- ¹⁸ The Disabled Veteran in the Federal Civil Service, U.S. Civil Service Commission, 2-14. Sept. 1946.

- ¹⁹ Placement of the Disabled Sets Peacetime High. Army Times, A.G.R.V. Ed., Wash., D.C., March 2, 1957.

- ²⁰ Report of the Piercy Committee. The Disabled. The Lancet: 986-988, Nov. 10, 1956.

- ²¹ The S. S. Huebner Foundation for Insurance Education-Pensions; Irwin. Univ. of Pennsylvania Press, 1955. 192-193.

- ²² Problems of Retirement; New York Academy of Medicine Bulletin, 33:46-55. Jan. 1956.

- ²³ Parliament: Increases for Older War Pensioners. The Lancet, Nov. 25, 1956.

- ²⁴ Glass, A. J.: Observations of the Epidemiology of Mental Illness in Troops During Warfare: Symposium on Preventive and Social Psychiatry. Walter Reed Army Institute of Research, April 1957.

Doctors as Ambassadors

By

AMOS R. KOONTZ, M.D.

I BELIEVE it to be true, and have long held the view, that if doctors could get together around a table and be empowered to settle international problems, they would do so at least without recourse to war. There would, of course, be some disagreements but these disagreements would seldom, if ever, result in violence. If this is true, why is it true? Possibly because doctors are dedicated to saving human life, rather than to destroying it. Certain it is, that the best doctors, in all countries, have a philosophy of life that does not vary greatly the world over.

I have observed all across Asia that medical missionaries are held in high regard because they contribute something to the people among whom they live. They get to know what the people are thinking, what their problems are, and are close to them in a way in which members of our embassy staffs do not even approach. The latter spend most of their time around the capitals attending to impersonal official business, which does not touch the life of the people; and in going to parties.

At a couple of meetings recently I could not help observing the beneficial effect on international relations which the contact of doctors from various countries has.

At the recent meeting of the Association of Military Surgeons of the United States, a German officer told me that he was very pleased with the meeting, not only with the program, but with the way in which the meeting was run. He said that he thought that it was fine that during the proceedings an occasional joke was thrown in, which made people laugh. I remarked to him that the German people were convivial people who liked to sing and exhibit good fellowship also. He said, "Ah yes, but not the military!" Then he went on to say that he wished all of his people could come over here and see us in action.

A delegate from Norway told me that he had had lunch with two Germans and liked them very much, while before coming he had felt that he would never sit at a table with a German again.

I talked with an Arabian and when I first started talking with him he looked very cold. He continued to look cold when I told him I had been in the Middle East. (He was probably very suspicious of what I was going to say.) However, when I said that I liked the Arabians very much, his response was warm and generous, as indicated by his pleasant smile and the kindly expression in his eyes. Afterwards, I saw him a good many times during the meeting and we became on the most friendly terms which could be expected of people with a few days acquaintance. The fact that we had mutual acquaintances in the Middle East also helped.

At this meeting there were 74 foreign delegates from 32 different countries. All mixed together in the most friendly fashion, and if there were any suspicions of one another, or any token of unfriendliness whatsoever, I was unable to detect it. The more of such international gatherings of doctors we have, the better and the better for our respective countries. I think all should be urged to tell their politicians at home the impressions they get in the various countries they go to. I make it a point of telling my congressman and senators, whenever I can, of the favorable impressions I get of people from other countries. In the world as it is today, the need for developing friendliness, rather than discontent and suspicions, is obvious. Remember the old adage that a man to have friends must show himself friendly.

At the recent meeting of the Association of Military Surgeons, there were no delegates from Iron Curtain countries. The Association does not invite them. This, I believe, to be correct. The entire philosophy of Iron Curtain countries is diametrically op-

posed to everything that we consider decent, honest, and honorable. One often hears the remarks that there must be some decent Russian doctors, so why not invite them. I strongly believe that the great majority of the Russian people are fine people, just as they are in most other countries. One cannot read Tolstoy's novels without believing that the old Russian family life was very fine indeed. In spite of the fact that the present Russian system has done everything it can to destroy that, there are undoubtedly many, many Russians who are not in agreement with the aims of their government. It must be remembered, though, that the people of Russia do not lead a free life and that the doctors of the Iron Curtain countries are not free to go to meetings as we are. They have to be sent by their governments. One may be sure that these countries will not send delegates to international meetings who are not imbued with their repulsive philosophy of life. They cannot be dealt with on a straightforward, decent, and honorable basis, so why try to deal with them at all?

This was exemplified at the recent meeting of the International Society of Surgery in Mexico City. The Russians sent thirty doctors to that meeting and there was also a number from Red China. They were constantly praising the Communist system. If they had anything to contribute medically, I didn't detect it. One Russian made a talk in which he stated that he would present the experimental proof for a certain thesis, but

continued talking without ever producing the proof. Instead, he simply reiterated his unproved statement.

It is naive to be taken in by a Communist simply because he smiles and pretends for the moment that he is pleasant and going our way. Actions speak louder than words, and their actions, since Lenin laid down the dicta of the Communist party in 1903, have shown that they have never deviated one iota from the Communist line, which is pledged and dedicated to the destruction of capitalism everywhere by fair means or foul—by deception, treaty breaking, lying, stealing and murder. The end justifies any means, no matter how revolting. We should leave them alone until such time as the Communist system breaks up, as it is bound to sooner or later, if we will just stop supporting it. One way in which we support the Communist system is by hobnobbing with them and thus lending them prestige. This discourages the satellite nations and helps continue the Communist stranglehold on them.

In the meantime, I strongly feel that the more association doctors of the Free World have with each other and the more they try to influence the politicians at home, the better for the world. It must be remembered that doctors do have a lot of influence if they will only make the effort to exercise it in the right way.

1014 St. Paul St.
Baltimore 2, Md.



The Brig Medical Officer

CAPTAIN CHRISTOPHER C. SHAW (MC), *U. S. Navy*,* AND LIEUTENANT COMMANDER
RICHARD G. SINGER (MC), *U. S. Navy Reserve*†

THE Medical Officer assigned to the brig finds himself confronted with a variety of duties, 75 percent of which revolve around psychiatric problems. In addition to the medical and clinical aspects of the inmates' health, the Brig Medical Officer must recognize and treat an assortment of psychiatric symptoms. In conducting sick call in the brig with approximately 100 inmates, only about one hour per day is required to care for minor medical complaints, the majority of which are conversational in character. It is important, however, for the Medical Officer, or his legally appointed representative, to make rounds through the brig each day to determine whether or not there are inmates with covert psychiatric problems who fail to appear at the sick call. This, of course, is especially true of some types of schizophrenic reactions—notably of the catatonic‡ variety.

Brig prisoners can readily be categorized into three or four main types: the antisocial personality, the overly anxious youngster or the man of low inadequate intelligence who goes "over the hill," the depressed morose individual who is a potential suicide, the chronic alcoholic, the overt malingerer and the "hospital repeater." The purpose of this communication is to discuss briefly each category and to conclude with a few remarks

The opinions or assertions contained herein are the private ones of the authors and are not to be construed as reflecting the views of the Navy Department or the naval service at large.

*The Medical Officer, Philadelphia Naval Shipyard, U. S. Naval Base, Philadelphia 12, Pennsylvania.

†Formerly Psychiatrist, Medical Dispensary, Philadelphia Naval Shipyard, U. S. Naval Base, Philadelphia 12, Pennsylvania. Present Address: Veterans Administration Hospital, Northport, New York.

‡"Catatonia" may be defined as a "form of schizophrenia characterized by negativistic reactions, phases of stupor or excitement, and impulsive or stereotypic behavior."

on medical administrative and professional procedure relative to the security staff of the brig.

THE ANTISOCIAL PERSONALITY

In any type of prison, the most frequent psychiatric entity is the so-called "antisocial personality." This type of prisoner presents a considerable and recurring challenge both administratively and medically because he is aggressive and forward in promoting his various complaints in an attempt to gain some special privilege—frequently through the medium of an old injury. These people are very convincing talkers who insist that something be done to alleviate their unenviable condition and unbearable suffering. As a rule, however, such prisoners tend to adjust to the nature of the brig routine after their attempt at special consideration has been rather firmly denied.

The antisocial personality frequently comes to psychiatric interview after he has complained, either to the corpsman or to the legal authorities, that he is a victim of "amnesia." Despite the fact that one sees relatively few hysterical episodes in the twentieth century, amnesia remains a rather popular type of complaint among antisocial personalities. These people almost invariably state that at the moment of their misdemeanor, whether it was "going over the hill" or some minor theft, they were the victims of amnesia and scarcely knew what they were doing. There are other variations on this theme, especially in reference to being absent without leave. Very often a man will go "over the hill" for a rather extensive length of time and then return to his home where he is eventually picked up. After the man has been apprehended, he will complain that he was the victim of amnesia. He may have gone to the trouble of actually consulting his family doctor from whom he has obtained a brief note substantiating his in-

competency and irresponsibility. These men are usually given the benefit of the doubt and a psychiatric interview is requested in an attempt to evaluate their emotional status. Very rarely can they prove that they have given a really truthful report of their emotional experiences.

Another device that the antisocial personality utilizes is to tell the legal authorities that he has been tempted on many occasions to commit suicide. This is always a point of considerable concern especially to the legal authorities. Yet, the antisocial personality almost never makes a really serious suicidal attempt. However, it is of importance for legal and moral and ethical purposes to evaluate the man's condition to determine whether or not he is truly depressed during his period of confinement. It is of the greatest importance to give him an adequate medical and psychiatric examination to sum up his psychological status, since the antisocial personality often is the victim of impulsive behavior such as hitting the guards with his fists or attempting to attack other inmates of the brig.

Another type of antisocial prisoner is the individual who has received prolonged hospitalization after being over the hill for an extended period. These patients when returned from the psychiatric ward to the brig, experience great difficulty in adjusting to disciplinary routine. When such an individual arrives at the brig after release from the hospital, he almost always suffers a considerable relapse in his psychiatric status. This is especially true with the passive-aggressive type of individual who repeatedly complains about his symptomatology and who invariably relapses into a behavior pattern typical of anxiety. Such individuals are hard to handle. They become very cantankerous when first admitted to the brig and make threatening statements to the effect that they are going to "go wild" if they are confined for any length of time. These patients usually permit themselves the luxury of irrational and hysterical modes of behavior which have an adverse effect on the staff of the brig—especially the young men

who are working in the capacity of guards and turnkeys. Because the staff of the brig has not had special psychiatric training, they become upset and confused when confronted with an inmate who is obviously very "irrational" as witnessed by his screaming and yelling or throwing himself on the deck.

Patients admitted from the hospital to the disciplinary barracks are well-aware that the Brig Medical Officer is not necessarily on duty at night. They accordingly have their most violent episodes in the evening when they are reasonably assured that they will be examined by some doctor who has no regular assignment at the brig. The Medical Officer, seeing the inmate for the first time and not being aware of the circumstances, is tempted to return him to the hospital on the basis of his overt behavior. Naturally, this presents a tremendous problem since the man has just been discharged from the hospital primarily because the doctors there felt he was in sufficiently good condition to tolerate his confinement. Rehospitalization imposes an additional and untenable workload on the medical and clerical staff, which is basically unjustified. On the whole, it would appear that such a patient promptly utilizes his previous hospitalization in an effort to return to the freedom and privileges of the hospital and thus avoid further punitive imprisonment. The Brig Medical Officer should be cognizant of these factors and reluctant to return patients to the hospital on such short notice. A period of firm observation makes the eventual disposition self-evident.

Another type of antisocial individual which comes to the sick call in the brig and who requires the Medical Officer's attention is the prisoner who has some ill-defined type of physical complaint. This individual—very often an antisocial personality—is very clever in playing one Medical Officer against another. Such an inmate appears at sick call for advice and treatment and after it is rendered, begins to point out that he has been treated in a slightly different way by another doctor. Although one would ex-

pect this type of behavior, it becomes rather awkward when the prisoner demands a request made with the Commanding Officer of the brig or his wife writes to his Congressman for redress of this "injustice" resulting from honest differences in professional opinion. The Commanding Officer may in turn feel it is his responsibility to try to clarify the situation, not realizing that the personality of the complainee is that of a psychiatrically disturbed individual. As a consequence, a rather clever antisocial personality can create considerable friction by introducing and magnifying differences between the various members of the staff. It is also the habit of such prisoners to exaggerate greatly any old or present injury and in this way try to bring about hospitalization. Since such a personality tends to be a very convincing talker, he is occasionally successful in arranging a hospital admission for a condition which probably healed months prior to his entry into the brig and has no direct bearing on his disciplinary status.

"OVER THE HILL"

Another type of prisoner who presents a psychiatric problem is the individual who is chronically "over the hill." These men fall into two gross categories: the rather anxious boy and the intellectually inadequate individual. As a rule, the former has not been long in service nor been away from home before. This type of young man (anxiety reaction) has great trouble adjusting to the demands of military life and seems unable to tolerate a situation in which he is given positive orders by people with more rank and authority than himself. As a consequence of being bossed around aggressively, his anxiety is activated to such a high pitch that he becomes increasingly more desperate. Eventually, his frustration reaches such an intensity that he becomes less and less fearful of the consequences of his behavior and finally no longer cares what happens to him. Like an animal who has been cornered and rendered completely desperate, he is inclined

to impulsive behavior, the most frequent reaction being to run away or go "over the hill." These individuals will leave their military assignment and almost invariably return home, mostly because they feel completely despondent and resigned to the fact that they will inevitably get into a great deal of trouble. They apparently believe that their present circumstances are so incompletely intolerable that nothing they could do would make life any worse than it is. These men tend to make a rather poor adjustment in the brig, since the brig is substantially an extension of the military situation and tends to provoke a great deal more anxiety. However, when they are made to understand that if they behave properly in a certain narrow and limited way they will not get into any further trouble, they seem to tolerate their confinement relatively well.

The second category of men who go "over the hill" consists of individuals who are intellectually inadequate, due to low native intelligence and limited social background. This type of enlisted man is almost always correctly diagnosed by his shipmates as a "yard-bird" and as such is the butt of the practical joker and the tantalizing teaser. Since such an individual, who is basically below average in intelligence, finds it extremely difficult to answer with the same type of sophisticated repartee, he grows more frustrated as the teasing progresses. He promptly becomes the scape-goat for the collected frustrations and irritations of the people with whom he is working. Since he is unable to retort, the individual becomes progressively restless, irritable and depressed. As this goes on, he eventually reaches the point where, although he might have previously liked the service, he no longer cares about maintaining his position. This man goes "over the hill" to avoid an unbearable situation with which he can not cope, travels to his home for security and is subsequently apprehended and returned to the brig. As a rule, he makes a rather good adjustment in prison and very often finds that there is relatively little emotional differ-

ence between being a confinee in the brig and being on active duty. Naturally, this is an undesirable state of affairs since the individual then feels that the time he was absent without leave was a matter of pure pleasure and the punishment is not really any worse than being on active duty. Shortly after completing his imprisonment in the brig, he takes off "over the hill" again. In the long run such an individual becomes a chronic offender and eventually has to be separated from service.

THE POTENTIAL SUICIDE

Another type of inmate is the man who is genuinely depressed and constitutes a very real suicidal risk. These cases occur rather frequently and really require the most careful and thorough attention of the Brig Medical Officer. Too often these personalities are quite serious about their suicidal attempts. It requires almost constant supervision to avert catastrophe. These men should be confined to a solitary cell where all shoelaces, neckties, belts, razor-blades and other "weapons" are unavailable. The potential suicide can be given really excellent supervision by the brig psychiatrist. There is very little likelihood of a man being successful in his despondency if his intentions are known to the staff.

One of the most difficult things about a potential suicide is the task of evaluating the validity of his intent. It would appear that those people who are most serious about their intentions have the least to say about them. Thus it is imperative to make daily rounds in the prison and whenever possible, address a few remarks to each prisoner in order to uncover any psychomotor retardation. A brief conversation with the guards is of inestimable value in uncovering such situations. On the other hand, those individuals who threaten to destroy themselves in a rather obvious way can be relied upon to be consistently unsuccessful in their efforts. Very often, the maladjusted individual attempts through abortive suicide (swallowing metallic foreign bodies) to

achieve some secondary gain, such as a transfer to the hospital or the attention of the staff to his exaggerated psychiatric problems which he feels deserve special privileges. The risk lies in the fact that an abortive, half-hearted attempt at suicide may meet with sudden and totally unexpected success. Hence, threatened or impending self-destruction is the most serious psychiatric problem among the inmates in a brig.

THE CHRONIC ALCOHOLIC

An additional category of prisoner is the chronic alcoholic. These people are often guilty of provocative behavior to such a degree that their fractiousness is no longer tolerated and they are confined to the brig for safe keeping. All too frequently, such an individual becomes involved in some minor misdemeanor and has charges placed against him. Once confined, these alcoholics abruptly become very penitent and insist that they are medically ill people. Almost invariably they demand hospitalization and insist that some treatment be given to them which will cure them of their alcoholism. They assume or imply that they are helpless individuals caught in the grip of a social disease which they are completely unable to control. They therefore vociferously demand special consideration, such as easy work parties, limited duties, some type of medication for their nerves and "special privileges," ad nauseam. The alcoholic invariably feels that he is absolved from all responsibilities by virtue (?) of his excessive drinking. The Brig Medical Officer can evaluate whether or not such an individual is worth returning to duty, and recommendations must be made accordingly. Many chronic alcoholics are on the verge of delirium tremens, and it is necessary to treat them medically not only to aid their recovery but also to avert an expensive hospital admission. Actually, the brig is in many ways a rather convenient situation for treating these people since their behavior can be constantly observed and there is very little likelihood of their obtaining more alcohol while incar-

cerated in prison. Since most of the men are rather young, they tend to recover quite rapidly during their confinement but the majority later on are returned to the brig for a "postgraduate course."

THE MALINGERER

Another type of individual is the man who wishes to make a case for himself and when given an initial interview insists that he is a very ill man. This is the classic military malingerer. He may attempt to demonstrate his alarming and critical "mental illness" by means of the "silent interview." The prisoner assumes a blank, dazed and distracted manner refusing to answer any and all questions. Or they are prone to put on an act; they try to talk incoherently and attempt to convince the interviewer that their behavior is the result of considerable mental confusion and emotional disorganization. The Medical Officer must be extremely cautious about referring such cases to the hospital on short notice without adequate observation. It is of tremendous value to keep such a person in the brig a few days so that his behavior may be observed by the brig corpsman and other people in the building. Over a period of several days, the individual can be evaluated impartially and impersonally. In this way needless hospitalization at the expense of the Government may be avoided. The Medical Officer should procrastinate in reporting his evaluation of the prisoner, bearing in mind that the man is always motivated toward secondary gain. That same dazed and confused inmate may be laughing and joking in the hospital ward a few hours later, if he can sell the brig doctor a bill of goods. The authors recall a prisoner who "fainted" at court martial. At first glance, he appeared to be in deep coma. A brief examination, which included covering his nose and mouth so that he could not breathe, led to extreme restlessness, agitation and incoherence. He was removed to sick bay. When the Medical Officer stepped out for a moment, the patient leaped nimbly out of bed, tried to relieve the guard of his gun but was subdued in grand style. The

next morning the prisoner was up and around, already bucking for special privileges, the harrowing events of the preceding day dismissed, and his antisocial personality traits functioning with all their suave charm.

The general procedure in handling inmates in the brig is to give them an initial interview soon after they have been admitted to the building. Generally, men coming to the prison have accompanying papers which indicate whether or not a psychiatric examination is in order. Complete notes must be kept in their charts on the nature of their problems and their reactions thereto, so that the corpsmen who are assigned to the building at night have familiarity with the individual. This is especially true with those antisocial personalities who magnify their minor physical complaints and frequently request an emergency examination from the Medical Officer who happens to be on duty in order to obtain some special concession, usually prompt admission to the nearest Naval Hospital. However, if the Brig Medical Officer is careful to keep adequate clinical notes in their charts, most malingerers are thwarted by their record at sick call.

THE HOSPITAL REPEATER

One of the prime responsibilities of the doctor assigned to duty in the prison is the capacity to say "No." Almost invariably situations arise in which people aggressively and forcefully ask for special privileges, examinations, consultations, and repeated, prolonged hospitalization. It actually is the doctor's responsibility to stop these things at the lowest possible level in order to avoid a great deal of confusion and needless expenditure of funds. This is especially true in men who have old complaints and wish to be examined at the nearest consultation center. For some reason, orthopedic problems seem to head the list. Very often, the man coming into the prison will immediately test the Medical Officer's capacity for firmness by appearing at sick-call with some terrifying complaint or a series of excruciating symptoms, which obviously incapacitate

him and require immediate hospitalization or emergency re-hospitalization. This has been known as the "old army game"—or words to that effect. The personality and capability of the doctor and the corpsman are of the utmost importance in "separating the sheep from the goats" at morning sick-call.

Since so many men are inclined to make unjustified complaints about their health, the observations of the corpsman who is both firm yet capable of good medical judgment can make a tremendous difference in the morale of the brig and the ease of operating it. Such a corpsman is able to weed out the weeds from the wheat. He is also able to furnish the Medical Officer with really coherent observations on the behavior of the inmates when they are not necessarily aware of the fact that their activities are under surveillance. Needless to say, this is of great assistance in evaluating a case—especially those individuals in which one is suspicious of a possible psychosis, probable malingering or obvious hospital-repeater.

STAFF PROBLEMS

One of the problems that will very often confront the Medical Officer assigned to the brig is that surrounding the staff personnel. Since many of the inmates are adept at imitating various psychiatric conditions, they are quick to capitalize on the somewhat reasonable anxieties of the staff. More often than not, the guards in the prison are young men themselves who have had little experience with emotionally ill people and tend to be rather frightened by the whole experience. As a consequence, it is necessary, whenever possible, to reassure the members of the brig staff about the mental and/or emotional condition of a certain prisoner. It is also important to instruct the guards about the possibilities of depressed patients committing suicide and, whenever feasible, to give the guards some instruction about the reasons why a prisoner may be inclined towards self-destruction and the tip-off sign of impending self-immolation. On the whole, the staff of the brig is generally quite receptive to practical instructions or reason-

able suggestions. The brig runs much smoother when staff have some intellectual understanding of or insight into the inmates' motivations. Oddly enough, it frequently works out that the Medical Officer has to tell the members of the brig staff that a patient is fully responsible for his malefactions and that they should not be inclined to great leniency simply because the prisoner was sent to the brig after hospitalization for observation of some minor psychiatric condition. Unfortunately, many of the prisoners who come to the brig from the hospital are quick to capitalize on their previous or recent hospital admission and thereby to intimidate the staff in many subtle ways.

All in all, the duties of the Medical Officer in the brig seem to revolve around the element of caution. The biggest factor is to use some discretion before making disposition of an inmate, especially in reference to transferring him to the hospital. The brig per se provides ample opportunity to interview patients and to observe their behavior under a variety of circumstances. In this sense, the brig approximates the hospital except for the fact that there are fewer trained observers in the prison than there would be in a hospital. On the other hand, the inmates in the disciplinary barracks are less aware of being watched and tend to be much more free in their behavior. Although the brig can not be regarded as a therapeutic situation, it is possible to conduct psychotherapy at frequent intervals on those inmates who tend to be depressed but whose depression has not reached psychotic proportions necessitating hospitalization. Sometimes, rather hasty transfer of the patient to a hospital simply prolongs the man's period of confinement at unnecessary expense to the Government and further complicates his situation by consolidating his symptomatology. Intelligent observation, clinical deliberation and the cautious administrative approach are qualities most necessary in the medical supervision of brig prisoners. And the greatest contribution the Brig Medical Officer can make is the ability to say "NO" with kindness but unshakeable firmness.

Repair of Tympanic Membrane Perforations

By

LIEUTENANT COLONEL JOSEPH CHARLES ELIA, USAFR (MC)*

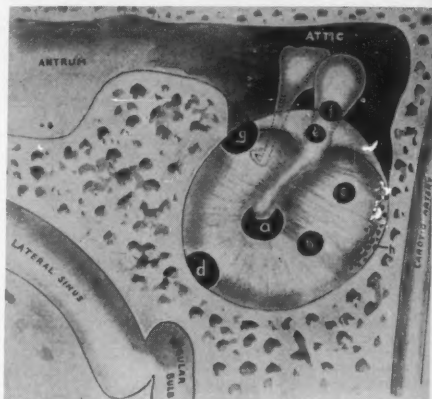
(With two illustrations)

MY PERSONAL interest in this problem resulted from an interesting patient many years ago, who, upon wiping her ear with a cotton tipped tooth pick noted that her hearing improved when the device was placed in one certain position during this process.

Encouraged by this experience, she sought advice hoping for permanent improvement in hearing. Examination of her ear revealed a moderately large central perforation in an otherwise normal drum head. Attempts to close this perforation with weak strengths of acetic acid, and later chromic acid did not cause closure of the perforation. However, after stimulating granulations by gentle curetting of the rim of the perforation and later applying a solution of ten percent silver nitrate solution to the outer layer of the tympanic membrane perforation a few times at weekly intervals, there was a decrease in size of the perforation. Finally, a thin piece of white paper was held in place over the perforation with a small amount of cotton for a period of three weeks. At the end of this period, the paper disc was removed and the perforation was almost completely closed. It eventually closed without any further treatment.

In the everyday practice of otolaryngology, there are undoubtedly a large number of patients who can be benefited by treatment of a tympanic membrane perforation. Attempts to close as many of these perforations as is possible should be made. When drum-head perforations are successfully closed, the patient will often have an increase in hearing; a decrease in head noise; a decrease in discomfort from ear discharge which often accompanies upper respiratory

* Formerly, Chief, Department of Otolaryngology, Veterans Administration Hospital, West Haven, Conn. Present address: Box 717, Reno, Nevada.



VA Photo

FIG. 1. Sites of tympanic membrane perforations.

infections; and he will be able to enjoy an occasional swim without the worry of introducing infection or foreign material through the aperture.

Before any attempt is made to close a tympanic membrane perforation, a few fundamentals should be observed.

First: The perforation must be central (note "b" and "c" in figure 1.) If there is no remaining tympanic membrane tissue between the annulus tympanicus, closure will not result by this technique. Positions of perforation "d" and "g" in figure 1 will not heal.

Second: The perforation must be dry. Middle ear infections and any pathological activity precludes this type of treatment. Two or three weeks of freedom from discharge generally suffice.

Third: There must be no acute or long standing active nasal diseases which are uncontrolled. Sinus infections and allergic processes involving the mucous membrane of the nasal cavities should be properly controlled so that there will be adequate nasal ventilation.

Fourth: The nasopharynx and the peritubal area must be free of disease and obstruction so that the middle ear can be ventilated both before and after closure of the perforation.

Fifth: The ear canal must be free of infections and other inflammatory processes for at least one month.

Sixth: Diseases causing coughing and sneezing must be controlled. Attempts to close perforations will be met with fraught if the patient continues to sneeze and cough. Active hay fever and pulmonary diseases must be controlled.

Seventh: Toxic or otherwise irritating fumes should be avoided and even eliminated when possible during the period of treatment. Smoking must be discontinued. Nasal respirators used around places of employment where there is the danger of inhaling irritating vapors and fumes and dusts.

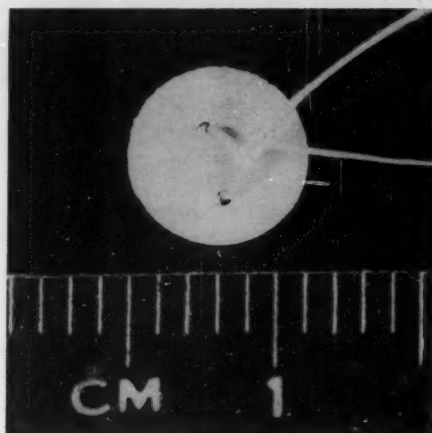
Eighth: The long handle of the malleus must not be exposed or infected, as "a" in figure 1.

PREPARATION OF THE PAPER DISC

A six millimeter paper disc is made by punching a hole through white fifteen pound bond paper by means of an ordinary office punch. A piece of black thread is then run through and back out of this disc and tied on one side (note figure 2). The ends of the black thread should be about one half inch long beyond the knot. The thread facilitates the introduction of the paper disc by grasping the knot with a forceps and accurately placing it over the perforation. It also makes easier the removal of the disc for the black color is easily visible and the disc can be removed without any direct contact or trauma to the recently treated drum head. It has been very difficult removing the paper disc at times in the past without the string "handle" when the disc did not fall away from the drum head easily. Sterilization of the paper disc is accomplished by autoclaving before applying to the drum head.

TECHNIQUE

Two days prior to introduction of the



VA Photo

FIG. 2. Paper disc preparation.

paper disc, the perforation should be prepared in the following manner: Anesthesia can be accomplished by the use of a topical anesthetic solution such as one percent pyribenzamine or two percent pontocaine. A few drops of the anesthetic solution is allowed to trickle through the perforation to the middle ear. This anesthetizes the inner aspect of the tympanic membrane and the lining of the middle ear. The edges of the perforation are now gently curetted. The area immediately adjacent to the perforation is touched with some ten percent silver nitrate solution. The entire process is repeated on the second day. On the third day, this process is followed by the introduction of the moist paper disc by grasping the thread knot with proper forceps and placing the disc against the drum, thus covering the perforation. The black threads will fall into the external canal. A small amount of cotton is now placed in the external canal to hold the disc gently but firmly against the tympanic membrane, completely covering the perforation. It thus acts as a bridge for bands of tissue to be laid down and eventually complete epithelization of the defect, and also acts as a barrier which keeps out infection and foreign material from the middle ear. The paper disc is not touched or manipulated in any way for at least two weeks unless the patient has any undue discomfort or upper

respiratory infection. If the perforation is large and the patient suffers no discomfort from the treatment, the disc can be allowed to remain in place for as long as three weeks before removing for examination. No useful purpose is served by removing the disc too frequently or too quickly. Some delay in healing may occur by too frequent manipulation for some of the strands of tissue laid down may be disturbed or torn.

At the end of a two or three weeks period, the cotton is removed. The black threads are grasped gently near the knot and the disc is carefully removed. The drum head is inspected and if the perforation is now considerably decreased in size it may be left untreated for a few weeks and then re-examined. Often, healing will continue once the epithelization has begun. There will be other cases which will need a treatment or two of merely touching the edges of the perforation with some solution of silver nitrate. If the perforation persists, another paper disc application may be necessary.

During the course of the treatment, the patient should be advised that he will have a loss in hearing. He can thus adjust to his everyday life, and also will not be surprised or worried about the almost complete loss of hearing by plugging the external canal with the disc and cotton.

Fifty-nine cases were treated by application of the paper disc technique. The results of these are as follows:

Marginal perforations. Of 19 cases in which the annulus tympanicus was exposed in one spot, successful closures were not possible. Three of the perforations became considerably larger and drained for periods of about two weeks. One case drained for 16 weeks after being irritated with silver nitrate.

Central Perforations Involving the Long Handle of the Malleus. (Note position "a" on figure 1.) Twelve such cases were treated and did not heal. If there is involvement or exposure of the long handle of the malleus in any part, this method will not cure the condition. In one case where the distal tip of the long handle was exposed and eroded,

an attempt to closure was made after the infected tip was removed and considerable antimicrobial medication was administered. Five attempts were made to cause closure of the perforation, and although the size of the perforation decreased, it never completely healed.

One patient with a slight cough became worse during treatment. It was necessary to remove the disc and the cotton. The amount of purulent secretion was unbelievable, and the size of the perforation was considerably increased. This patient had a pulmonary tuberculosis. The aural discomfort associated with his uncontrolled cough precluded any further attempts to treatment until his pulmonary symptoms were adequately treated and eliminated.

None of the four cases of perforations in Shrapnel's area (positions "e" and "f" in figure 1) were closed successfully. Numerous attempts were made in each case.

Twenty-three tympanic membrane perforations which were central in location (positions "b" and "c" in figure 1) and not involving the long handle of the malleus were closed after using the treatment described.

Of these twenty-three, it was necessary to temporarily discontinue treatment in two cases which were complicated by hay fever. Treatment, however, was successful when done at the end of the hay fever season with the adjunct of antihistaminic therapy.

Four of these twenty-three successful closures resulted in heavy smokers. The original closures were not successful and it was noted that the inner layer of the paper discs and the cotton holding the discs in place were heavily stained brown by the tobacco. These patients were advised to discontinue smoking during the period of treatment with the resulting complete closure of the perforations.

Three patients with previous histories of external otitis had episodes of external otitis during the course of treatment. It was necessary to discontinue treatment in one of them and repeat it at a later date when there was no activity in the external canal. The other

two were treated with the cotton and the paper disc untouched, using a solution of "Terra-Cortril"* in the external canal, distal to the cotton plug. Results of all three were eventually satisfactory.

One patient who had a successful closure developed an acute otitis media 14 months later. An early myringotomy was done to prevent rupture in the area of the previous defect. Healing was without incident with the additional use of antimicrobial medication.

Another patient upon whom a successful closure of a central perforation is being re-

ported, had a traumatic rupture of the anterior inferior quadrant of his drum head where a previous perforation existed. It healed without treatment in three weeks.

CONCLUSIONS

The central perforation, of which there are many, should be treated with the goal of closure. There is a definite group of basic requirements necessary before closure can be expected. Specific contraindications for attempting this procedure are lacking, but favorable results can be expected only when the criteria named are present. Much comfort and increased hearing will result to the patient if attempts are made to close these perforations whenever possible.

* "Terra-Cortril"—Pfizer's Oxytetracycline and Hydrocortisone.



Acne Vulgaris and Chlorides

By

LOTHAR WIRTH, M.D.

IT HAS been stated that "all treatment of acne vulgaris, even roentgen ray, can at best effect only an arrest and cannot produce a true causal cure." In some cases "the utmost skill and ingenuity may be required to effect a satisfactory result," . . . "the entire therapeutic armamentarium may prove disappointing or entirely ineffectual."¹

In dealing with some cases of acne I considered the matter of the chlorides in the etiology. It has been well established that other halogens, bromides and iodides, can cause acneiform eruptions. Sensitivity may be one of the operative mechanisms in some of these cases.² Although not in connection with acne, it has been reported that there are individuals who are sensitive to chlorides.³ Observations on the effectiveness of cortisone in some cases of acne are on record.⁴ The beneficial results obtained were explained with the hormonal influence of cortisone upon the adrenal androgens. I could think of another explanation, namely, the antiallergic action of cortisone in cases of

sensitivity to table salt.

Thirty-two patients with acne vulgaris for which no other cause was obvious were placed on a low salt diet. The only local treatment used was a suspension: sodium sulfathiazole 6.0 gm; zinc sulfate 10.0 gm; potass. sulfurata 8.0 gm; rose water qs ad 120.00 cc. This lotion was applied at night.

On this course of treatment all patients improved markedly. Existing lesions gradually disappeared and new ones could be prevented almost completely during a period of two-years observation.

82 Broadway

Rensselaer, N.Y.

REFERENCES

- ¹ Sulzberger, M. B., and Wolf, J.: *Dermatology*, pg. 268 (1952). The Year Book Publishers, Inc.
- ² Wirth, L.: Prednisolone in iodism—an observation. *MILITARY MEDICINE*, 121:105 (Aug. 1957).
- ³ Urbach, E., and Gottlieb, P. M.: *Allergy*, pg. 381. (1943). Grune & Stratton.
- ⁴ Didcock, J. W.: Observations on the effect of cortisone in acne vulgaris. *J. Invest. Dermat.* March 1954.



"The most important unsolved problem in education is discovering and releasing the maximum potential of each child. We need poets, senators, businessmen, as well as scientists and engineers. If we discover what children have in them early enough, we'll have more than enough of everything."

JOHN HERSEY, novelist, *Mathematics Teacher*.

The Courageous Medics of Anzio, II*

By

COLONEL ROLLIN L. BAUCHSPIES, MC, U. S. Army†

11

DURING the first two weeks of February the Germans continued probing attacks, built up the strength of their artillery and increased the tempo of the shelling of the beachhead. On 5 February the enemy had 372 pieces of artillery with 152 of caliber exceeding 105 mm concentrated around the VI Corps position. Directed by observers on the dominating heights of Coli Laziali, the Lepini mountains and a water tower in Littoria, the enemy's long range artillery weapons and 210 mm and 240 mm railroad guns were able to drop high explosive projectiles into any part of the confines of the beachhead. Many of these guns were located out of range of our own Corps artillery. The Navy and Air Force elements supporting the Corps were called upon to assist in knocking them out.

Most of the enemy heavy artillery fires were directed against the port of Anzio to deny its use and prevent supplies from being brought ashore and also to destroy fuel and ammunition dumps located throughout the rear areas of the beachhead. To reach these targets the heavier guns on the enemy left flank had to fire over the hospital area. Many "short" rounds fell into this concentrated center of medical activity. On 4 February artillery shells landed in the 33rd Field Hospital location and although several ward tents were destroyed there were fortunately no casualties. The Headquarters section and the 1st and 3rd Platoons of the Field Hospital had moved into the hospital area on 30 January and operated in support of the 3rd and 45th Division Clearing Stations. The 2nd Platoon of the Field Hospital on 5 February moved from its initial position on the beach and joined the rest of the

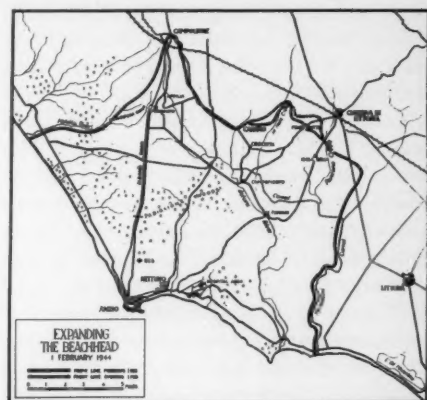


FIG. 9

unit. The 3rd Division Clearing Station and the 3rd Medical Battalion (3rd Division) had initially established themselves in this site now occupied by the hospitals and continued to function in their normal position in the chain of medical evacuation.

Damage from enemy bombing was much more serious than the long range artillery fire. Both day and night, the beachhead was a constant target for enemy planes which flew in to bomb and strafe shipping in the harbor, the dock areas, ammunition dumps

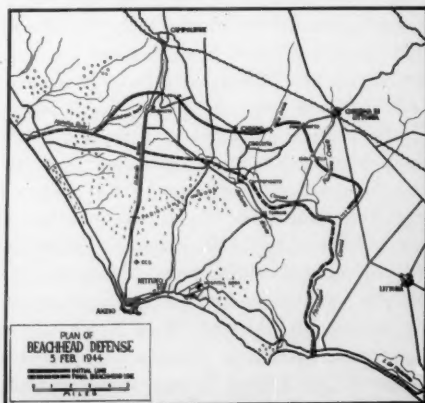


FIG. 10

* First installment in January 1958 issue of MILITARY MEDICINE (Vol. 122: 53-65).

† U. S. Army Hospital, Neubrucke, APO 34, New York, N.Y.

and troop assembly areas. No place was safe. The enemy used an increasingly larger percentage of anti-personnel ("butter-fly") bombs in his nightly attacks which caused many casualties throughout the beachhead.

The 7th of February was a comparatively quiet day on the VI Corps front. Repeated bombing raids covered the rear and port areas with high explosive and anti-personnel bombs. This day will long be remembered by the medical personnel who served on the beachhead at that time. At 0810 hours twenty enemy planes attacked and strafed the streets in Anzio and Nettuno. Bombs landed near VI Corps Headquarters located in the Hotel de Ville in Nettuno and caused several casualties among the headquarters personnel. The headquarters was subsequently moved into the wine cellars, a series of underground passageways, beneath the town where it remained for the next three months. In this same raid three trucks transporting ammunition were hit in the main thoroughfare of Nettuno and set afire. Colonel Jarret B. Huddleston, the Corps Surgeon, was in the immediate vicinity and, disregarding the danger of exploding shells and enemy strafing, assisted in rescuing and treating the wounded truck drivers. For this heroic action Colonel Huddleston was awarded an Oak Leaf Cluster to the Silver Star Medal by General Clark who was present on the beachhead at the time.

Shortly after 1500 hours on this same day a raid was made by enemy fighter bombers. One plane, separated from the rest and under attack by a British Spitfire, jettisoned its load of anti-personnel bombs in an effort to gain altitude and elude his pursuer. This bomb load fell in a characteristic pattern from one side to the center of the area occupied by the 95th Evacuation Hospital. Bomb fragments riddled the administrative, receiving and operating tents, killing or seriously wounding the occupants and destroying the equipment. The Chief Nurse, First Lieutenant Blanche F. Sigman, Army Nurse Corps (East Akron, Ohio), the Assistant Chief Nurse, First Lieutenant Carrie T. Sheetz, Army Nurse Corps (Camp Hill,



FIG. 11. Effects of Enemy Bombing in Hospital Area.

Pennsylvania) and Ward Nurse, Second Lieutenant Marjorie G. Morrow, Army Nurse Corps (Audubon, Iowa) were killed while completing the administration of blood plasma to a patient. Miss Esther Richards (San Francisco, California) an American Red Cross field worker assigned duty with the hospital, two officers and sixteen enlisted men of the hospital complement, four patients and two other military personnel were also killed in this incident. Nine officers including the Hospital Commanding Officer, Colonel Paul K. Sauer, Medical Corps, (New York, New York), four members of the Army Nurse Corps, 36 enlisted men of the hospital medical detachment, and ten patients were wounded. Private Wesley Tanner, a litter-bearer, was carrying a patient to the X-Ray tent and was wounded in the back when he shielded the patient's body with his own. Private Robert P. Mulreaney, a member of an engineer unit, was visiting his brother, Private First Class Eugene A. Mulreaney, Company A, 815th Engineers, who had been wounded in action and was a patient in the hospital. When the bombs fell, Private Robert P. Mulreaney covered his brother's body with his own and was fatally wounded. His brother, Eugene, suffered no further injury.

The bombing of the 95th Evacuation Hospital on 7 February disrupted its organization and seriously handicapped its ability to function efficiently. The hospital had been

operating almost to capacity and the loss of personnel and the destruction of equipment made it difficult to continue operation. In all, 29 ward tents, two surgical and ten other tents, the X-Ray and Headquarters equipment had all been destroyed. When the Commanding Officer was wounded and evacuated Lieutenant Colonel Hubert L. Binkley, Medical Corps, the Hospital Executive Officer, assumed command. The dead were removed immediately and the wounded including all pre-operative patients were transferred to the 56th and 93rd Evacuation Hospitals. Only medical cases were retained and their treatment continued in the 95th Evacuation Hospital.

That the medical personnel of the 95th Evacuation Hospital were equal to the catastrophe was attested to by the fact that the hospital remained in operation despite its losses. Captain Henry A. Korda, Medical Corps, Captain Henry A. Luce, Medical Corps and Tech. 5th Grade George J. Schuermann, Private First Class Donald E. Druck and Private Wesley Tanner continued on duty although they had been wounded. However, such a catastrophe was not without its effect on the morale of the personnel when the situation returned to normal routine. The loss in personnel and equipment was so great that General Martin after personally surveying the situation decided to relieve the personnel and replace them with another hospital unit. The personnel and needed equipment were brought to the beachhead by the 15th Evacuation Hospital under the command of Colonel Frank Y. Leaver, Medical Corps, on 10 February. Upon arrival on the beachhead the 15th Evacuation Hospital took over the hospital facilities of the 95th Evacuation Hospital and the care of the 417 remaining patients. The following day the personnel of the 95th Evacuation Hospital were evacuated from the beachhead and returned to the southern front of Fifth Army where they took over the hospital and responsibilities left there by the 15th Evacuation Hospital at Riardo. An opportunity was thus afforded the 95th Evacuation Hospital to reorganize

and obtain its needed equipment. Colonel Sauer and other wounded personnel were able to return to the unit which rapidly regained its high state of efficiency. In recognition of its services on the Anzio beachhead, General Clark awarded the unit the following commendation:

"THE 95TH EVACUATION HOS-

PITAL is commended for its outstanding devotion to duty and meritorious conduct during the period 23 January to 11 February 1944. Personnel of this hospital landed at Anzio, Italy, under continued aerial bombardment. The hospital was established in tentage, and personnel immediately began treating battle casualties. During the entire period the beachhead was subjected to aerial bombardment and shelling by enemy long range artillery. On 30 January 1944, the hospital moved to an open field near Nettuno, Italy, because of the increasing intensity of enemy shelling and bombing. Tents were erected on this site, and the organization continued its mission of caring for the wounded in battle. Although the hospital was subjected to bombing attacks, causing numerous casualties among personnel and patients, and destroying vital equipment, the personnel continued to admit and administer treatment to patients in a calm and efficient manner. The courage under fire and devotion to duty displayed by members of the 95th Evacuation Hospital reflect the finest traditions of the Army of the United States."

It is doubtful that the enemy deliberately bombed or shelled the medical installations on the beachhead. The location of the hospital area was radioed to the German Commander, giving the coordinates of the position occupied. It was impossible to locate the hospitals on the beachhead in areas completely apart from military installations. Between the hospital area and the beach was the only air strip available and during the ensuing months many enemy artillery shells landed in the hospital area when the enemy attempted to destroy the only air support base present on the beachhead. This air strip

was also the target of repeated bombing raids, especially during the night. In front of the hospitals the Corps medium artillery was located and the hospital area frequently suffered from enemy counter-battery fire. A radar station and a gasoline dump flanked the area. It was for good reasons that this hospital area became known to the combat troops as "hell's half acre."

12

While the 15th Evacuation Hospital was being loaded in the Naples area on 9 February, a new staggering loss was sustained by the medical service on the beachhead. Colonel Jarrett B. Huddleston, Medical Corps, the VI Corps Surgeon, was killed in action on that day. Colonel Huddleston had landed in Italy on D-day of the Salerno invasion, exactly five months previously (9 September 1943) where he distinguished himself as a resourceful leader. During the ensuing campaign he had secured the best possible medical support for the troops under the command of the VI Corps. Again at Anzio he had landed on D-day and once again brought both American and British medical installations ashore with great skill. At 1400 hours, 9 February 1944, Colonel Huddleston had left the Medical Section of Corps Headquarters prepared to make a tour of the medical installations on the beachhead and while awaiting the arrival of his jeep at the Corps dismount line was struck by a fragment of a heavy caliber (170 mm) high explosive shell which had landed in the street. His death ended the career of a sterling field soldier of the Medical Corps. The Legion of Merit was awarded Colonel Huddleston posthumously.

Upon the death of Colonel Huddleston, Lieutenant Colonel Clarence B. Brewster, Medical Corps (Fort Worth, Texas), the Deputy Corps Surgeon assumed the duties of Corps Surgeon until a new Corps Surgeon was appointed.

At 1630 hours on 10 February three enemy 170 mm artillery shells fell in the receiving ward of the 3rd Platoon, 33rd Field Hospital. First Lieutenant Glenda S. Spiel-

haug, Army Nurse Corps (Crosby, South Dakota), the Chief Nurse, Second Lieutenant Laverne Farquahr, Army Nurse Corps (Sidney, Texas), a member of one of the 2nd Auxiliary Surgical Group Teams, and an enlisted technician were killed. The Commanding Officer of the 33rd Field Hospital, Lieutenant Colonel Samuel A. Hanser, Medical Corps, and Captain Phillip Giddings, Medical Corps, a member of a surgical team of the 2nd Auxiliary Surgical Group, received major wounds. Four officers and four enlisted men of the hospital personnel suffered minor injuries. There were no patient casualties. One of the shells struck the electric power generator and caused a serious fire from the gasoline which was hurled on to the tents. This fire was controlled by the heroic efforts of the personnel of the 33rd Field Hospital and of the 56th Evacuation Hospital. The operating tent and much essential equipment were destroyed. The patients being treated by the 3rd Platoon were transferred to the 56th Evacuation Hospital. It was necessary to evacuate Colonel Hanser from the beachhead and upon his departure Captain Robert W. Newman, Medical Corps, the senior platoon commander present in the 33rd Field Hospital, assumed command.

13

The regular monthly professional meeting of the Medical Corps officers of Fifth Army was held at the 38th Evacuation Hospital on the afternoon of 10 February. I had spent most of the morning at the 36th General Hospital in Caserta and returned to the 16th Evacuation Hospital about noon-time when I was informed that General Martin desired to see me before the meeting. When I reported to General Martin the first words he said to me were, "Jerry was killed yesterday." For several minutes there was nothing that either one of us could say. It was quite a shock to learn of Colonel Huddleston's death. I had been intimately associated with Colonel Huddleston during the planning and preparation period for operation AVA-LANCHE, the invasion of Italy, and together we reconnoitered for possible hospital

sites during the early days of Salerno when our invading forces did not own much Italian real estate. Jerry was a well known officer of the Medical Corps, a grand old file, one of the senior officers of the corps serving in the theatre and a medico who thoroughly enjoyed his duties with the combat troops. I am sure that Jerry was happy to have died with his boots—and his helmet—on.

General Martin informed me that I had been selected as the replacement for Colonel Huddleston and that my assignment as Surgeon, VI Corps, had been approved by Major General Alfred M. Gruenther, Chief of Staff, Fifth Army. General Martin also explained to me that in view of the grave situation existing on the beachhead it was imperative that I get up there at my earliest opportunity.

Although I attended the meeting that day I cannot recall what was discussed—my thoughts were elsewhere and filled with other matters. I can truthfully say that I was not overly enthused about my new assignment. I had been assigned as Surgeon, VI Corps, once before. In July 1943 I received orders from Allied Force Headquarters detailing me as Surgeon, VI Corps, as the replacement for Colonel Myron P. Rudolph, Medical Corps, who had been reassigned as the Surgeon, Eastern Base Section, located in Mateur, Tunisia. (At that time I was in command of the 38th Evacuation Hospital and was operating a 1300-bed installation north of Tunis in support of the Sicilian campaign. In compliance with my orders I relinquished my command, turning it over to Lieutenant Colonel George T. Wood, Medical Corps (High Point, North Carolina) who was my Executive Officer. With many regrets in leaving a fine hospital, I boarded a plane at El Aloina airport near Tunis and flew to Casablanca in French Morocco. I obtained some transportation and drove to the 6th General Hospital and stayed with Colonel Thomas R. Goethals, Medical Corps (Boston, Massachusetts), the hospital commander and an old friend. The next morning I borrowed Colonel Goethal's staff car and

drove up to Rabat where VI Corps Headquarters was located. I reported for duty at about 1030 hours and at 1300 hours I was informed that my orders assigning me to the Corps were being cancelled and that I was to report to the Surgeon, NATOUSA (Brig. General Fred S. Blesse, Medical Corps). I learned that Colonel Huddleston had arrived unassigned in the theatre and that he also was the senior Medical Corps colonel in the theatre. As soon as I could get air passage arranged I flew back to Allied Force Headquarters in Algiers. That evening I had dinner with General Blesse and Colonel Martin (Colonel Martin was promoted to the rank of Brigadier General on 24 January 1944) at the Aletti Hotel. It was regretted that the situation caused me some embarrassment but I was promised an assignment as a Corps Surgeon when another opportunity presented itself—in the meantime I was given a new command—that of the 16th Evacuation Hospital then located at St. Barbe Du Tlelat south of Oran.)

Thus it fell to my lot to command two large (750-bed) Evacuation Hospitals in the Mediterranean Theatre of Operations and my second unit, the 16th, was performing efficiently and I thoroughly enjoyed working with them. We had had a hectic experience together when we established our hospital on the beaches of Salerno and since then had become a closely knit unit. Again it was with many regrets that I had to relinquish command of a fine hospital. At the time our hospital was very busy and my farewell was brief. I turned over my command to Lieutenant Colonel Philip A. Daly, Medical Corps (Urbana, Illinois) my Executive Officer, and was prepared to leave for the Anzio beachhead in the morning.

Lieutenant Colonel Charles O. Bruce, Medical Corps, Executive Officer of the Fifth Army Headquarters Medical Section, made arrangements for me to reach the beachhead by a PT boat but adverse weather conditions set in and prevented both water and air transport to Anzio. Thus I was delayed forty-eight hours in complying with my new orders because of a lack of means

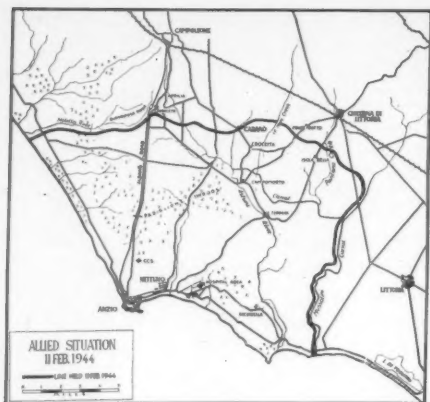


FIG. 12

to get to the beachhead. Eventually arrangements were made for me to fly on an ATC plane which was to lift a shipment of whole blood from the army blood bank to the hospitals at Anzio. Incidentally, this turned out to be the last transport plane that was able to make this hazardous trip until late in May as it became too dangerous to fly that type of craft to the beachhead.

The transport plane was scheduled to take off at 1300 hours, 12 February from the Pamigliano Field near Naples. There were two large air fields near Naples but I was only familiar with the location of the Capodichino field which lay north of the city on the road to Caserta. I had received a call from Colonel Bruce about 1000 hours that morning informing me of the availability of this plane. I was prepared to leave and took off in my jeep for Naples and the Pamigliano air field, exact location unknown. The roads were deep in mud from the incessant winter rains and clogged with the vehicles of the New Zealand Corps which was moving over into the Fifth Army sector from the area held by the British Eighth Army. I had a competent driver but progress was slow. After many delays and frequent inquiries we eventually found the air field east of Naples near the base of Mount Vesuvius. The Pamigliano field was used chiefly by the British RAF and was littered with the debris caused by our earlier Allied bombing

when the enemy had occupied this area. In attempting to locate the lone ATC plane on that large field we were further delayed. It was well after 1400 hours when we found the right place. The pilot was still awaiting my arrival and as soon as I had my bedding roll and personal equipment loaded the pilot and I climbed aboard and we took off. The plane carried 200 pints of whole blood and there were several other American and British passengers.

Leaving the field the pilot circled Naples several times and then flew to a preselected rendezvous where he picked up his fighter escort composed of four P-47 planes which flew cover for the transport. Leaving Naples behind us we flew out to sea carefully avoiding the Italian coast occupied by the enemy between the Fifth Army southern front and the Anzio beachhead. Flying north the plane flew so low that it barely skimmed the waters of the Tyrrhenian sea. As soon as we passed Torre Astura on our right the plane nosed upwards to gain sufficient altitude in order to land on the short air strip on the beachhead.

My first view of the beachhead as we descended disclosed a sea of hospital tents, each painted with the Geneva Convention red Cross, on our right. While the plane landed and we debarked our fighter escort circled above us. As soon as the plane was unloaded it took off for its return flight to Naples. There was no ceremony. My arrival had not been announced and there was no one to meet me. All was ominously quiet on a late afternoon. I saw General Lucas the VI Corps Commander talking with General Clark. The Army Commander was waiting for a fighter escort to appear to fly cover for his own plane on its return to Naples. This turned out to be General Clark's last air trip to the beachhead too. Thereafter he commuted to the beachhead via PT boat until conditions at Anzio improved. For the next three months only small courier and fighter planes were able to get down on the air strip.

At the air strip I was able to obtain the use of a weapons carrier on which I had the cases of whole blood and my personal equipment loaded. This truck took me into Net-

tuno where I located VI Corps Headquarters and found my way down into and through an intricate system of underground passages. These passages contained the various staff sections of the Corps headquarters. I passed through one section after another until I came to the Medical section where I met Lieutenant Colonel Clarence B. Brewster, Medical Corps (Fort Worth, Texas), who was then acting as the Corps Surgeon. My first meeting with Colonel Brewster had been at Rabat. I requested Colonel Brewster to have my personal equipment removed from the weapons carrier and to dispatch the life saving cargo of whole blood to the British 12th FTU as I did not know where that unit might be located. I then went to make my formal report for duty.

It was a rather novel experience that I had in making my second appearance at Headquarters, VI Corps, for the purpose of reporting for duty. From the Medical section I was guided through more passageways to the G-4 Section where I sought out Colonel Edward J. O'Neill, General Staff Corps, the Corps G-4. Eddie and I had served in Hawaii at the same time during the early thirties and later were classmates at the Infantry School, Fort Benning, Georgia. We had more recently come in contact with each other when the 16th Evacuation Hospital was attached to VI Corps during the invasion of Italy at Salerno. Colonel O'Neill introduced me to Colonel John F. Cassidy, General Staff Corps, the Assistant Chief of Staff, G-1, of the Corps and to Brigadier General Laurance B. Keiser, the Corps Chief of Staff. Later I reported to the Corps Commander, Major General John P. Lucas. I was aware that a tense situation was existing in the Corps Headquarters; the fortunes of VI Corps were at a low ebb and all of the officers wore expressions of grim concern. My meeting with the Corps Commander was cordial but brief. My services were needed and I was welcomed to the Corps staff but my reception lacked enthusiasm. It was a gamble as to just how long any of us would remain on the beachhead.

When I returned to the Medical section

I was introduced to the members of the office staff. I have already mentioned Colonel Brewster who was to continue on duty as the Deputy Surgeon. Colonel Brewster was a jovial character and a typical Texan. My assignment as the Corps Surgeon was a bit embarrassing to Colonel Brewster and also to me. Colonel Brewster had come overseas as the Surgeon of the 36th (Texas National Guard) Division and when Colonel Rudolph was reassigned Colonel Brewster was transferred to Headquarters, VI Corps ostensibly for the purpose of becoming the Surgeon of the Corps—then I was assigned to that duty and later Colonel Huddleston. Upon the death of Colonel Huddleston Colonel Brewster was informed that he would be the Corps Surgeon and again I appeared to take over that position. Colonel Brewster was a good soldier and understood the situation and he was an excellent assistant. The other members of the medical staff were: Major Clarence T. Richardson, Dental Corps, the Corps Dental Officer; Major Donald F. Mossman, Veterinary Corps, the Corps Veterinarian; CWO William J. Keyes, the Chief Clerk; MSgt Raymond J. Sicard, Staff Sergeant Paul E. Smedberg, Tech. 3rd Class Edward S. Reske, Sergeant Edward Legros, Tech. 4th Class Theodore Munaugh, Tech. 4th Class Michael F. Manion and Tech. 5th Class Herbert E. Laager. Representatives of the British increment on duty with the Medical section were Lieutenant Colonel Thomas F. Briggs, RAMC, and his "clark." Colonel Briggs served as the ADMS of the Corps.

Before dark I sought out a billet. MSgt. Sicard took me to another series of underground passages about a city block from those occupied by the Corps Headquarters. Sgt. Manion and Cpl. Laager helped me with my bedding roll and personal effects. Our short route from the Medical section led around several corners, up the main thoroughfare of Nettuno, around two more corners and then down a long steep stone stairway into utter darkness. With the light of a flashlight we entered a subterranean passage similar to that housing the Corps



FIG. 13. Personnel Quarters in Wine Caves, Nettuno.

headquarters. MSgt. Sicard led me to the area that had been occupied by Colonel Huddleston. I experienced great difficulty in retracing this route later that evening when I made the trip alone and in black-out.

I was informed that these underground passages or wine caves beneath Nettuno were over 700 years old. The corridors were excavated out of fine, soft sandstone which could easily be carved with a pocket knife. Along each main passage and its branches were niches large enough to contain a huge wooden hogshead of wine. Most of these large casks were empty and many of the spaces were unoccupied. Some of the remaining casks still contained choice Italian wine. (The best supply of wine in Nettuno was in the casks still remaining in the bays occupied by the Corps medical section; which proved to be a popular place for visitors, official and otherwise, until the supply was exhausted.)

About all that I can say about the billet I had inherited on the Anzio beachhead is that it was the most inhospitable place I had ever known. I had a "better 'ole" in the fox-hole I occupied for six days on the beach of Salerno five months earlier; at least there I was able to look up into the sky and

watch the Jerries when they came over. I realized, of course, that it was safer underground and that it afforded the best protection available from the bombing and shelling that was gradually disintegrating both Anzio and Nettuno. My beachhead habitation reminded me of the stories I had read of the medieval dungeons—for such it was. No light filtered into these underground caverns except that provided by flashlight or candle. And I wondered how safe I would be underground. These passages ended in blind alleys and my billet was in one of them. I calculated that a high explosive shell or bomb landing near the stairway would seal off the passage and I would be entombed. There seemed to be some system of ventilation but in the darkness I was unable to figure it out. Apparently there were some vents carved out of the walls and fitted in some way with the process of aging the wine. The place was cold and damp with a mold on the walls similar to mildew. I am not a victim of claustrophobia so I did not mind the darkness or the confining atmosphere—at least not at that time—so I considered my lot as being part of the misery of the war. I unrolled my bedding roll and made up my bed and arranged my few personal belongings that I was able to bring with me. I had obtained a few candles and was ready for the best or the worst. There was only one other niche occupied in this passage and that by Colonel Larry B. Skinner, Quartermaster Corps, the Corps Quartermaster.

Upon my return to Corps Headquarters it was getting dusk and I learned that it was time for supper. Absolute blackout was observed all over the beachhead. All meals were served during daylight hours as there was not sufficient room underground for the mess. The officers' mess was in a building which was connected by a stairway with the underground passages. Only the minimum amount of combat "C" rations were served as supplies reaching the beachhead were not yet sufficient in quantity. I joined several other staff officers at the colonels' table where my introduction to them was per-

functory—all seemed intent on getting their food and getting out of the mess. Midway through our meal the air raid siren sounded and everyone in the mess rushed for the stairs and the protection of the caves. I followed the rest. When the "all clear" signal was sounded about a half hour later we returned to the mess to finish our cold meal in the darkness. This became a daily occurrence. It seemed that the Germans knew that we observed regular meal hours in Nettuno and their planes were over the town and harbor of Anzio every noon and about 1800 hours each evening. For breakfast we were entertained by an artillery concert but on the receiving end of the shelling.

During the air raid that disrupted my first meal on the beachhead the raiders heavily bombed and strafed the harbor area. The raid on the beachhead lasted about an hour and a half. One anti-personnel bomb dropped by the enemy landed in the officers' quarters area of the 56th Evacuation Hospital and Second Lieutenant Ellen G. Ainsworth, Army Nurse Corps (Glenwood City, Wisconsin) was severely wounded in the chest by a bomb fragment and died from the effects of her injury four days later. (I visited Lieutenant Ainsworth while she was a patient on one of the wards of the 56th Evacuation Hospital. Knowing that our best professional efforts were unable to save the life of this gallant nurse and that in a matter of hours she would pay the supreme sacrifice by giving her life in the service of her country, brought not only sadness and a feeling of great loss to all of her associates in the medical service but vividly impressed on us the seriousness of our situation and what might be its inevitable solution.)

Equipment damage in the 56th Evacuation Hospital during this raid was extremely heavy; 33 small ward tents and three pyramidal tents housing officer and nurse personnel were destroyed. Much personal clothing and effects were also lost.

The British hospitals were not immune to this aerial attack. Both the 2nd and the 15th Casualty Clearing Stations were bombed by

the attacking planes resulting in three British personnel being killed and fourteen wounded.

After supper and while another air raid was in progress I spent the time in my underground office familiarizing myself with the duties that devolved on the Corps Surgeon. About 2230 hours, after writing my daily letter to the folks back home, I put on my coat and helmet, picked up my "black-out" flashlight (equipped with a blue lens) and decided to venture out into the night and attempt to find my new billet. As I approached the stairway leading to an exit from the subterranean headquarters I was stopped by an MP who demanded the password. I was unprepared for this challenge as I had not been accosted in this manner when I first reported to the Corps Headquarters. I returned to the medical section to learn this most important word on the beachhead that night. It was necessary to challenge and identify everyone for there was imminent danger of German infiltration on land and the beachhead was vulnerable to both sea-borne and air-borne attack. No one could afford to take chances. After successfully negotiating my second attempt to pass the sentries at the foot of the stairs by giving the proper pass-word I climbed the stairway which was in utter darkness. As I was struggling with the folds of the black-out curtains, for there were no doors, at the head of the stairs, I was again challenged by a pair of MPs. Having and giving the password, I was allowed to leave. I stepped out onto a pavement which could be felt but not seen. The sky was starless and it was an intensely black night. Bursting shells of enemy artillery at the front momentarily lit up the overcast sky like summer heat lightning. Orienting myself I sought the latrine, a necessity of major importance to my new way of life for there were no toilet facilities in the subterranean dungeons where we both worked and slept.

Leaving the latrine I again oriented myself and started out for my billet. I threaded my way across a rubble strewn alley until I was able to feel the building on the op-

posite side knowing, if I remembered my directions correctly, that by keeping in contact with the buildings I would reach the main street and then get to my billet. By touching the wall with my left hand I was able to proceed slowly through the alley way until I reached the pavement of the main thoroughfare. Rounding the corner I was able to increase my pace to a slow walk. I was aware that several individuals passed me as I proceeded up the sidewalk and in the street trucks with only the small blue "black-out" lights drove through the town carrying supplies from the docks to the troops up front. All of us had great admiration for those drivers because our very existence on the beachhead depended on their getting ammunition up where it could be used to keep the enemy in check. As I cautiously continued my way along the sidewalk I

suddenly became conscious of something standing in front of me. It appeared to be an individual but there was no sound or movement that I could detect. I halted and waited expecting to be challenged or assaulted. Nothing happened! I finally got up enough courage to advance and put out my hands prepared to ward off an attack if such was in store for me. My hands touched metal—I found that I had come onto a sidewalk gasoline pump. On succeeding nights as I followed the same route back to my billet I was invariably halted by this same experience. Knowing that the innocuous pump was there I would come upon it unexpectedly in the inky darkness. Several days later a shell or bomb toppled over a building in that block and the debris covered both the sidewalk and the gasoline pump. Thereafter I just had to skirt the rubble.

(To be continued)



EDITORIALS

Executive Secretary Retires

OVER forty years with the Association of Military Surgeons of the United States! That is the record set by Mr. Stuart E. Womeldorph who retired on January 1, 1958.



Winn Studio

STUART E. WOMELDORPH

The March 1957 issue of *Military Medicine* reported the presentation of a scroll to Mr. Womeldorph in recognition of his forty years with the Association. We now report the presentation of a comfortable chair to Mr. Womeldorph for those leisure hours so well earned by the long, active, and devoted service to our organization. He is an avid reader and we feel that this chair (of his

own choice) will add hours of real comfort to that reading.

Mr. Womeldorph is a native of Virginia. He has the distinction of having passed the State Teacher's Examination and of having earned several law degrees, one of which was Doctor of Civil Law in 1928. In his many years as "Mr. Association" he has had hundreds of interesting experiences pertaining to the officers and members and the conventions of our Association. Most of the interesting tales—we couldn't print!

While he will make his home in Virginia, there will be days spent in visiting his children who have made their homes in other localities. We trust he will play a little, live a little, forget a little, and reminisce a lot.

For those who wish to write Mr. Womeldorph, his address is 6025 25th Road North, Arlington 7, Virginia.

We wish for Mr. Womeldorph a long happy and healthful life in these days of his retirement.

Our New Executive

MR. WOMELDORPH has been succeeded by Lt. Colonel George M. Beam, Medical Service Corps, now retired, who has been with the Association since June 1, 1957.

Colonel Beam is a native of Arkansas and entered the military service in 1933. He served at the Army and Navy General Hospital, Hot Springs, Arkansas, from November 4, 1933 to January 31, 1941, where his principal assignment was in the Registrar's Office.

He had been commissioned in the U. S. Army Medical Administrative Corps, Reserve, in 1938 and was called to active duty as a commissioned officer as of February 1, 1941. His first assignment in that status was



U. S. Army Photo

LT. COL. GEORGE M. BEAM, AUS, RET.

at the Army Station Hospital, Fort Riley, Kansas.

Shortly after the Pearl Harbor incident Colonel Beam was ordered to duty with the 147th General Hospital. After "sweating out the Battle of San Francisco" for over five months a *suitable* ship was found to take them to Hawaii. He was subsequently assigned to the Surgeon's Office, Headquarters Central Pacific Area, Fort Shafter, Hawaii as Chief of the Statistical and Evacuation

Section. In this capacity he dealt with all the military branches in the speedy and considerate evacuation of the sick and wounded passing through that area of the Pacific Theater.

Immediately after the close of World War II, Colonel Beam returned to the United States and was assigned Executive Officer, Regional Hospital, Camp Polk, Louisiana.

He remained there until January 1947 when he was assigned to the hospital (now Camp LeRoy Johnson) at the New Orleans Port of Embarkation, Louisiana.

In 1949, Colonel Beam was assigned to the Office of the Surgeon General of the Army, later to Fort Myer, Virginia followed by an assignment as Medical Unit Advisor, U. S. Army Reserve Units, District of Columbia Military District.

In 1955, Colonel Beam was transferred to Germany where he became Commanding Officer of the 36th Medical Battalion and later Executive Officer, 31st Medical Group. His retirement from active military service came in April 1957 and was the occasion of a large review of military forces at Darmstadt. German officials and spectators were present in large numbers.

We are happy to have Colonel Beam in this important position of Executive Secretary.



AERO-MEDICAL ASSOCIATION

The Aero-Medical Association Annual Meeting will be held at the Hotel Statler, Washington, D.C., March 24, 25, and 26. An interesting program has been arranged.

For the ladies, a Welcome Tea and Fashion Talk has been arranged for the afternoon of March 24, and the annual business luncheon on the following day with additional activities during the convention. Mrs. Langdon C. Newman, president of the Wives' Wing, has appointed Mrs. Norman Lee Barr and Mrs. Paul A. Campbell as co-chairmen of the Arrangements Committee.

The Sir Henry Wellcome Medal and Prize

COMPETITION FOR 1958

THE competition is open to all medical department officers, former such officers, of the Army, Navy, Air Force, Public Health Service, Veterans Administration, The National Guard and the Reserves of the United States, commissioned officers of foreign military services, and all members of the Association, except that no person shall be eligible for a second award of this medal and prize and no paper previously published will be accepted.

The award for 1958, a medal, a scroll, and a cash prize of \$500, will be given for the paper selected by a committee composed of the Association's vice-presidents which reports on the most useful original investigation in the field of military medicine. The widest latitude is given this competition, so that it may be open to all components of the membership of the Association. Appropriate subjects may be found in the theory and practice of medicine, dentistry, veterinary medicine, nursing and sanitation. The material presented may be the result of laboratory work or of field experience. Certain weight will be given to the amount and quality of the original work involved, but relative value to military medicine as a whole will be the determining factor.

Each competitor must furnish six copies of his paper which must not be signed with the true name of the author, but are to be identified by a *nom de plume* or distinctive device. These must be forwarded to the Secretary of the Association of Military Surgeons of the United States, Suite 718, 1726 Eye St.-N.W., Washington 6. D.C., so as to arrive at a date not later than 1 July 1958, and must be accompanied by a sealed envelope marked on the outside with the fictitious name or device assumed by the writer and enclosing his true name, title and address. The length of the essays is fixed between a maximum of 10,000 words and a minimum of 3000 words. After the winning paper has been selected the envelope accompanying the winning essay or report will be opened by the Secretary of the Association and the name of the successful contestant announced by him. The winning essay or report becomes the property of the Association, and will be published in *MILITARY MEDICINE*. Should the Board of Award see fit to designate any paper for "first honorable mention" the Executive Council may award the writer life membership in The Association of Military Surgeons, and his essay will then also become the property of the Association.

Around the World

(Ser. II, No. 18)

By

CLAUDIUS F. MAYER, M.D.

ROMANIA is rarely mentioned by the world press, and not much has been heard of the scientific life of this satellite of Moskva. The more startling is the recent announcement of the director of the *Institute of Gerontology in Bucaresti* (her name is Anna Aslan) about her *new method for the rejuvenation of old people*. This woman doctor has been experimenting with the Leriche-type of intravascular novocaine treatment of the joint diseases of old age. The results of the injections were so surprisingly good that she came to the conclusion of attributing a regenerative, almost rejuvenating, effect to these injections. Oldsters who are not allergic to novocaine are given three intramuscular injections of the drug every week, each time 5 cc of a 2% solution whose reaction is adjusted to pH 4. The injection treatment is continued for a month. After a 10 day period of rest, another series of injections is given, and perhaps a third one (each of 12 injections) according to the obtained results.

A propos senescence! Prof. Binet informed the *French Academy of Sciences* that he obtained beneficial effects in old people by means of embryonal serum (extracted from lambs) given hypodermically. Would this be the *method of retarding aging*? The professor suggests so because the composition of blood and the basal metabolism changed after the injections of his extract of sheep embryos to values found only in young persons.

Speaking of such new remedies against old age, we recall that the Soviet press had frequently reported on citizens of the U.S.S.R. who reached their 120th, 130th or 150th year when they died. Though we did not hear of any claim by the Communist Party that the longer lives were the result of exceptional welfare under the party rule, somebody (S. Breiness) thought that a few

extra hours of sleep would be the best retarder of old age, since the symptoms of experimental precocious aging could be erased in a few animals which were put under artificial sleep. The Russian Academy of Medical Sciences is interested enough to urge the creation of an *Institute of Longevity in Moskva*.

Another Russian attempt for the conservation of life developed from another line of research. From the many earlier *Russian experiments with severed heads* and severed hearts of dogs and other animals, a new science took final shape, *the science of reanimation* and revivification. For about twenty years, the Laboratory of Experimental Physiology of Revivification of the Organisms has been working on methods which would be adequate to revive the dead. The Soviet Union had many opportunities to study life and death, and to observe the fact that *dying occurs in several steps*: first, the higher nervous activities of the cerebral cortex (and with them consciousness) is extinguished; then, the respiratory function in the medulla oblongata ceases; and finally the heart becomes paralyzed. Resuscitation should be performed in the reverse order: first, the cardiac function is reestablished by intra-arterial infusion of adequate nutritive fluid (blood) in the direction of the heart; then, by simultaneous application of artificial respiration (insufflation through a tracheal tube), the respiratory center is brought back to life; then, consciousness will return. The method had been often used during the Patriotic War of Russia (World War II) for successful reanimation of the wounded. The experimental laboratory was also able to re-establish cerebral function in animals one hour after their clinical death. It remains to be seen whether similar results could be obtained with dead men.

In India, the *Second Five-Year Plan*

(1956-1961) is now in its midposition. The highest priority was to be given to industrial resources and to means of transportation. This will create the agencies and the environment which will strengthen the people's movement for healthier living, and the social services will take a back seat until the national economy has been adequately reinforced. It is expected that the national income of India will be raised by 25% in the five years, and the unemployment will be reduced. The health sector of the plan includes the raising of the number of hospital beds from 100,000 to 250,000; of doctors from 70,000 to 90,000; and of the health auxiliary personnel by about 200%.

A surgeon tells us that *cancer is a common disease in India*. In Hindu women, about 20% of the cancers develop in the breast, 40% in the genital organs, and 40% elsewhere. A striking preponderance of breast cancer has been noted in Parsi women who had this malignancy three times more often than the Hindus and Muslims. On the other hand, cancer of the genitalia and of the mouth are very infrequent among the Parsi women. The cause of this difference is unknown.

At last year's International Conference on Tuberculosis, which was held at New Delhi, during a discussion of the *incidence of tuberculosis in the underdeveloped countries*, the members of the conference learned some interesting facts about the spread of tuberculosis in India. Analysis of the available statistical data shows that by the age of 14, from 40 to 60%, and by the age of 35, 75 to 90% of the Hindus became infected with tuberculosis in almost all areas of India. But the morbidity rate varied from 1 to 2.5% in the urban areas. The mortality rate from tuberculosis was between 32 and 779 per 100,000 of population in the underdeveloped parts of the World (it was from 9 to 63 per 100,000 in the developed areas).

One of the *difficulties of international tuberculosis control* is the lack of comparable statistical data, according to the report of a special study group of World Health Organization. The mortality rates are now no longer

sufficiently reliable, and there is a great need for other types of indices. The tuberculin index is also of a limited value, yet it is still the most reliable index at the present time. (The military conscript class appears to be the most reliable for purposes of international comparisons.) Catastrophes such as a war can rapidly destroy the gains European medicine achieved during the past decades.

Now, when the New Zealanders suddenly became conscious of the large number of cases of *echinococcosis* in their country, they looked to *Iceland for a solution* of their national problem. In the middle of the 19th century Iceland was the most heavily infested with echinococcosis among the European countries. Sheep-breeding was the main occupation of the people of Iceland who lived in the country, in close quarters with a number of dogs. Under such conditions, the *Taenia echinococcus* also lived in luxury, and took hold of a large portion of the *sheep-dog-man triangle*. Early investigations about 1840 showed that one out of every seven Icelanders harbored an echinococcus cyst. Twenty years later, when Iceland had 70,000 inhabitants and 20,000 dogs, the human and canine infestation with hydatid cysts was still spread wider. Indeed, every farm became the breeding place of taeniae and their entire biological cycle. Historically, the disease had been known in Iceland since the early 13th century when it might have been imported to the island with the dogs from North Germany. Prophylactic measures have been applied since 1863. The greatest stress was laid on preventing dogs from eating the entrails of sheep or cattle. Various laws were passed to increase the sanitation of sheep-slaughtering. By a combination of these measures, and with a change in the farming practice, echinococcosis finally disappeared from Iceland.

Studies by *Finnish military surgeons* show that the so-called *war nephritis* is only an acute nephritis, a glomerulonephritis, with a slightly different course, and it is not an independent kidney disease. It is a serious ailment which knocks the soldier out for a long time, and often makes him disabled for life.

There is no doubt that acute nephritis among soldiers should be considered a service-connected compensable disease. Though it has certain features which are usually seen in epidemic diseases, it is not a communicable disease. The disease occurred chiefly in the early spring of 1942. At that time, living conditions were extremely poor in the combat zone, and the food situation was also very difficult in Finland.

Fight against *rheumatic diseases in Finland* resulted in the creation of various foundations, and in the building of a 317-bed hospital at *Heinola*. The hospital opened several years ago, but until now, the patients who were admitted had been mainly in need of rehabilitation from the disabilities of chronic deforming progressive polyarthritis.

We do not know the *true extent of rheumatic fever and rheumatic heart disease*. The world statistics show, however, that among the deaths from cardiovascular diseases a large percentage is due to complications of rheumatic fever, especially in Great Britain, Canada, and Israel. Since it is now accepted that rheumatic fever results from infections with Group A haemolytic streptococci, there is now a world-wide attempt to prevent rheumatic fever, and subsequent chronic rheumatic heart disease, by control of streptococcal infections (sore throat, pharyngitis, etc.) by early penicillin treatment of individual cases, isolation of streptococcus carriers, etc. An environmental control is NOT possible.

There is a severe *shortage in scientific manpower in France*. Those at the top level of the French Government believe that the shortage is a result of the postwar disorganization of the educational system. In 1954, there were 151,000 students enrolled, but only 29,000 were studying science or engineering; of these only 3,900 reached the standard required for the diploma, and only 650 continued as research students. Research in this country is organized at three levels: (1) the universities, "grand écoles," and some 40 laboratories are controlled by the Ministry of Education, and administered by

the National Center of Scientific Research; (2) there are some 30 industrial cooperative research organizations, financed by the industries they serve; (3) there are a number of private establishments such as the Pasteur Institute, etc., and the research departments of individual companies.

More and more it becomes evident that *modern universities turned into vocational schools*. They produce doctors, engineers, lawyers, biochemists, specialists in history or languages, but they are no more providing an universal education of the students, and education which would aim at an overall understanding of life and humanity. It seems to be wrong to assume that science needs technologists only, specialists alone. The results of science have so many repercussions, implications, and applications of multiple meanings that no specialist today is able to comprehend them. It is highly desirable, however, that science should be understood in all its relations to culture and civilization. This would require a *different kind of schooling for science greats*. In such a school the educational elements would consider not only the exact sciences and their technological applications, but also the life sciences, then history and philosophy. The goal of such a school would be the welfare of man, material as well as social, moral, and spiritual.

Television added a new pathogenetic factor to the sphere of interest of school medical officers, according to the latest report of the Chief Medical Officer of the British Ministry of Education. Several eye clinics found that the number of children with headaches was increasing at the clinics. Though the vision of these children was normal, an inquiry showed that they had been watching television while sitting on the floor, looking at the screen from an angle, and sitting closer than 6 feet to the screen. To avoid such "*television headaches*," the screen should be a little above eyelevel, in front of the eye, and a dim light should be placed behind the viewer to reduce the glare . . . *Multa paucis!*

SUSTAINING MEMBERS

It is a privilege to list the firms who have joined The Association of Military Surgeons as Sustaining Members. We gratefully acknowledge their support.

ABBOTT LABORATORIES

ASTRA PHARMACEUTICAL PRODUCTS, INC.

AYERST LABORATORIES

BAXTER LABORATORIES, INC.

BECTON, DICKINSON AND COMPANY

BURROUGHS WELLCOME & CO. (U.S.A.) INC.

CIBA PHARMACEUTICAL PRODUCTS, INC.

COOK-WAITE LABORATORIES, INC.

CUTTER LABORATORIES

EATON LABORATORIES, DIVISION OF THE NORWICH PHARMACAL CO.

GENERAL ELECTRIC COMPANY

HOFFMANN-LA ROCHE, INC.

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID CO.

LILLY, ELI, AND COMPANY

MALLINCKRODT CHEMICAL WORKS

MEAD JOHNSON & COMPANY

MERCK & CO., INC.

ORTHOPEDIC EQUIPMENT COMPANY

PARKE, DAVIS & COMPANY

PFIZER, CHAS. & CO., INC.

PICKER X-RAY CORPORATION

PROFEXRAY, INCORPORATED

RITTER COMPANY, INC.

SCHERING CORPORATION

SEARLE, G. D., & CO.

SMITH, KLINE & FRENCH LABORATORIES

SQUIBB, E. R. & SONS, DIVISION OF OLIN MATHIESON CHEMICAL CORP.

STEPHENSON CORPORATION

WARNER-CHILCOTT LABORATORIES

WINTHROP LABORATORIES, INC.

WYETH LABORATORIES

ASSOCIATION NOTES

Timely items of general interest are accepted for these columns. Deadline is 3rd of month preceding month of issue.

Department of Defense

Ass't Secretary (Health & Medical)—HON.

FRANK B. BERRY, M.D.

Deputy Ass't Sec'y—HON. EDW. H. CUSH-

ING, M.D.

MEDICARE

In its first year of operation (completed December 6, 1957) *Medicare* has approved 321,116 physician-claims for an amount of \$23,089,310; and 198,235 hospital-claims for an amount of \$20,895,467.

The Director of this program is Major General Paul I. Robinson, Medical Corps, U. S. Army, who maintains his office in the Main Navy Building, Washington, D.C. His office has reported that the distribution of the claims were distributed as follows: Army, 26% Navy, 32%; Air Force, 40%; and Public Health Service, 2%. Maternity cases accounted for 41% of the cases.

TRAINING IN THE SPECIALTIES

While there have been a sufficient number of applications to take care of the physician needs of the military services through June 1959 there is a need for applicants for training in the following specialties: general practice, otolaryngology, occupational medicine, pathology, preventive medicine and public health, physical medicine and rehabilitation.

Army

Surgeon General—MAJ. GEN. SILAS B. HAYS

Deputy Surg. Gen.—MAJ. GEN. JAMES P. COONEY

CITED FOR SUPPORT OF AVIATION CRASH INJURY RESEARCH

The Army Surgeon General's Office has received a certificate of recognition for Army Medical Service support of efforts to improve aviation safety.

Citing the "valuable contribution" made by Army support, A. H. Hasbrook, Director of the Cornell University Crash Injury Research Program sent a certificate to the Army Surgeon General's Office at the time the Program was moved from Cornell University to Phoenix, Arizona.

The Crash Injury Program has received active support from the Army Surgeon General's Office since January 1, 1957. Captain William R. Knowles, Medical Service Corps, was assigned at that time to the Program by the Aviation Branch.

The Program has been able to dispel a number of false ideas about crashes; engineers and designers have been provided with factual information on which to change plane designs.

ALLERGY CLINIC

The military Out-Patient Clinic located in down town Paris has added another "first" to its growing list: an allergy clinic. This is the first clinic of its type in France and the third in Europe. At present there is one such

clinic in Frankfurt and another in Wiesbaden, Germany.

Although the clinic is presently operating on a part-time basis, supplies have been requisitioned from the United States so that the clinic can function continuously. Most patients being treated suffer from asthma, hay fever or eczema.

A great number of the cases have been referred to Paris by the general hospital in Orleans, France. As far as the clinic authorities were able to learn, this is the first time that a general hospital has referred patients to a Station Hospital.

When in full swing, the allergy clinic will be administered by one full-time doctor and one enlisted man. It will be open every morning and three afternoons a week for the convenience of patients.

ASSIGNMENT

Colonel Marco R. Bonsignore, MC, has been assigned as Commanding Officer of the U. S. Army, Aberdeen Proving Ground, Md. He recently returned from Venezuela where he served with the U. S. Army Mission as Medical Advisor to the Venezuelan Armed Forces Medical Services.

COMMANDS HOSPITAL

Colonel Robert B. Skinner, MC, has been assigned as Commanding Officer of the Martin Army Hospital at Fort Benning, Georgia. He was formerly the Commanding Officer of the Tokyo Army Hospital in Japan.

Navy

Surgeon General—REAR ADM. BARTHOLOMEW W. HOGAN

Deputy Surgeon General—REAR ADMIRAL BRUCE E. BRADLEY

FIRST SHORT POSTGRADUATE COURSE COMPLETED AT NAVAL DENTAL SCHOOL

Eight career dental officers of the Air Force, Army and Navy recently completed

a one-week postgraduate course of instruction in complete dentures at the U. S. Naval Dental School, National Naval Medical Center, Bethesda, Maryland. The course, which was under the supervision of Captain R. B. Lytle, Dental Corps, U. S. Navy, consisted of lectures, informal seminars and demonstrations. Emphasis was placed on the practical aspects of taking accurate impressions, recording of jaw relationships, and making occlusal corrections. This course was the first of a series of short postgraduate courses being offered at the dental school during the current school year. The course will be repeated in May 1958.

The dental officers completing the course were Captain R. L. Coombs, DC, USN; Captain I. G. Edwards, DC, USN; Captain R. C. Harwood, DC, USN; Captain T. C. Sample, DC, USN; Captain W. M. Thomas, DC, USN; Major R. E. Wheatley, DC, USA; Captain B. M. Carr, DC, USAF; and Lieutenant W. P. Eckstein, DC, USN.

Air Force

Surgeon General—MAJ. GEN. DAN C. OGLE
Deputy Surg. Gen.—MAJ. GEN. OLIN F. MCILNAY

NEW ASSIGNMENT

Brig. General Harold H. Twitchell, USAF (MC) has been assigned as USAF Surgeon in Germany. General Twitchell was the Continental Air Command Surgeon with headquarters at Mitchel Field, L.I., N.Y. He is the First Vice-president of the Association of Military Surgeons.

PRESIDENT-ELECT

Colonel Louis C. Kossuth, Deputy Command Surgeon, Air Defense Command, was named President-Elect of the American College of Preventive Medicine at the annual college meeting in Cleveland, Ohio recently.

He is a native of Wheeling, West Virginia, and has been on active duty since

July 1941. He has served as Chief, Preventive Medicine Division, Headquarters U. S. Air Force and later as Chief of Preventive Medicine, USAFE.



Air Force Photo

COL. LOUIS C. KOSSUTH, USAF (MC)

COMMAND VETERINARIAN

Colonel William B. Snodgrass, USAF (VC) has assumed the position of Command Veterinarian for the Air Training Command which has headquarters at Randolph Air Force Base, Texas. He formerly held the same position with the Strategic Air Command.

ASSIGNMENT

Major V. Harry Adrounie, USAF (MSC), formerly with the Medical Services Division, Office of the Inspector General, USAF, is now Executive Officer of the Preventive Medicine Division, Directorate of Professional Services, Office of the Surgeon General, USAF.

Major Adrounie has had fourteen years' experience in the preventive medicine field. He transferred to the Air Force Medical Service in July 1949.

Public Health Service

Surgeon General—LEROY E. BURNLEY, M.D.
Deputy Surg. Gen.—JOHN D. PORTERFIELD, M.D.

1957 YEAR-END STATEMENT

The Secretary of Health, Education, and Welfare, Marion B. Folsom, issued a Year-End Statement, abstracts of which we are presenting here:

Communicable Diseases. Communicable diseases continued their steady decline. The death rate from tuberculosis has gone down from 36.4 per 100,000 population in 1946 to an estimated 7.7 for the first 9 months of 1957.

Concurrently with the widespread use of polio vaccine, there was an 84 percent reduction in paralytic poliomyelitis in the United States compared with two years ago.

Health Research and Training. Heart disease and cancer continue to account for 70 percent of all deaths. These, and other major chronic diseases, are the principal targets of health research today.

Several years of research have culminated in the development of a vaccine against a number of respiratory disorders. These grippelike diseases—the adenoviruses—are among the respiratory illnesses that cause considerable absenteeism and an economy loss that runs into billions. The new vaccine for adults was licensed for manufacture in August, and a vaccine for babies and children under six is now in the experimental stage.

Indian Health. In general health conditions of American Indians and Alaska Natives improved considerably, but a tremendous backlog of serious health problems remain.

Environmental Health. Air pollution is now being measured in at least one major population center in every State as well as in other representative areas. In co-operation with the Atomic Energy Commission, the Public Health Service is operating a 40-station network to check air and rainwater radiation.

Rehabilitation of the Disabled. During 1957, under the State-Federal programs of vocational rehabilitation, more than 70,000 disabled men and women were given medical help and job training, and are now self-supporting. Of this number more than 14,000 had been dependent upon public assistance at a cost of about \$11 million annually.

TO ODM

Thomas A. Foster, Pharmacist Director of the U. S. Public Health Service, has assumed his new position in the Office of Defense Mobilization as the Health Supply Consultant in the Production Branch. He was formerly Assistant Chief in Emergency Plans and Requirements, Office of the Surgeon General of the Public Health Service. Mr. Foster is a member of the Executive Council of our Association.

Succeeding Mr. Foster in his former position is Arnold H. Dodge, Pharmacist Director, a career officer of the Public Health Service.

APPOINTMENT

Dr. John C. Cutler has been appointed Assistant Director of the National Institute of Allergy and Infectious Disease, National Institutes of Health, Bethesda, Maryland. He was formerly the Chief Program Officer of the Bureau of State Services, U. S. Public Health Service, Department of Public Health, Education, and Welfare.

Veterans Administration

Chief Medical Director—WILLIAM S. MIDDLETON, M.D.

Deputy Chief Med. Dir.—R. A. WOLFORD, M.D.

VETERANS ADMINISTRATOR

The new Veterans Administrator is Sumner G. Whittier. He was sworn in on December 27, 1957 to succeed Harvey V. Higley.

Five Veterans Administration staff offi-

cials in Washington, D.C., were honored with the agency's top service award on the eve of Harvey V. Higley's retirement as Administrator of Veterans Affairs.

The Administrator's Exceptional Service Award and gold medal went to John S. Patterson, Deputy Administrator; Dr. William S. Middleton, Chief Medical Director; Jack L. Spore, Executive Assistant to the Administrator; Frank W. Kelsey, Controller, and Sam Rose, Chief of the Central Office Contact Division.

National Guard

PROMOTED

We are pleased to announce the promotion of Doctor Amos R. Koontz of Baltimore, Maryland to Brigadier General, Maryland National Guard.

General Koontz was president of our Association in 1957. He is a surgeon on the staff of Johns Hopkins Hospital. He maintains an office at 1014 St. Paul Street, Baltimore. Congratulations, General Koontz.

HEALTH

To keep the people of the United States healthy today, it takes: some 210,000 doctors; nearly 7,000 hospitals with 1½ million beds, admitting 20 million patients a year; about 400,000 nurses; 86,000 dentists; 95,000 pharmacists—plus 300,000 technicians, dietitians, oculists, medical social workers and others.

It costs, for medical care, an average of about 5% of the family income. The lower the income, the larger the percentage spent for personal health service.

Health Information Service.

Miscellaneous

DEMOCRACY

The number one principle of democracy is that even a wrong guy has rights.—*Super-vision.*

WORK TO DO HERE

"Before we start visiting the moon, there is still a good deal to be done on this planet."

SIR LESLIE MUNRO,
President 1957 UN Assembly

Honor Roll

Col. Louis Abbamonte
Capt. W. W. Ayres, MC, USN
Major Edward A. Barrett, USAR
Col. William Croskery
Maj. Gen. James H. Forsee, MC, USA

Commander Mary C. Grimes, NC, USN
Major A. E. A. Hudson
Dr. John Irion, USPHS
Nurse Dir. Ruth L. Johnson
Major Robert E. Kellenberger, MC
Rear Adm. E. C. Kenney, MC, USN
Brig. Gen. Amos R. Koontz, MC, Md. NG
Lt. Col. John H. Kuitert
Lt. Col. A. M. Meirowsky, MC, USA,
Ret.
Cdr. Rita V. O'Neill, NC, USN
Colonel K. E. Fletcher, USAF (MC)
Henry Turkei, M.D.
Med. Dir. John M. Whitney, USPHS



INFORMATION FOR AUTHORS

COPYRIGHT: Matter appearing in *MILITARY MEDICINE*, the official journal of The Association of Military Surgeons of the United States, is covered by copyright. Permission must be obtained for the reproduction of anything in the columns of *MILITARY MEDICINE*.

MANUSCRIPTS: Manuscripts, including references, should be typewritten, double-spaced, on one side of unruled paper, size 8½ x 11 inches (approximately); original should be sent, carbon copy should be retained by the author. The author's name, official title, and address should be clearly stated. Photographs must be clear glossy prints, in black and white, unmounted, and properly identified. A limited number of illustrations will be reproduced at no expense to the author. Legends should be typed on a separate sheet of paper, numbered, and attached to each illustration; these should be numbered consecutively and location stated in the text. Quotations must include full credit to both author and source. Bibliographic references should be kept to a minimum. While manuscripts are subject to editing, the author assumes the responsibility for the statements he makes. It is understood that a manuscript accepted for publication will appear only in *MILITARY MEDICINE*.

REPRINTS: Reprints must be ordered when galley proof is returned by the author to the editor; 25 reprints will be furnished free.

ADDRESS: Send manuscripts to the Editor, *MILITARY MEDICINE*, Suite 718, 1726 Eye Street, N.W., Washington 6, D.C.

OBITUARIES

Surg. J. R. Hurley, U.S.P.H.S., Ret.

James Raymond Hurley, Surgeon, U. S. Public Health Service, Retired, died at his home in La Mesa, California, on October 7, 1957, at the age of 77.

Doctor Hurley received his medical degree in 1903 from the University of California Medical School.

He had contributed several articles to *The Military Surgeon*, the former name of our journal, during his active duty with the Public Health Service. In 1917 he received Honorable Mention in the Sir Henry Wellcome Prize Essay Contest. He was a 40-year member of our Association. He is survived by his widow who resides at 9298 Lemon Ave., La Mesa, California.

Col. Thomas L. Ferenbaugh, U. S. Army, Ret.

Thomas L. Ferenbaugh, Colonel, Medical Corps, U. S. Army, Retired, died at his home in Columbus, Ohio, December 5, 1957, at the age of 76.

Colonel Ferenbaugh was a native of Ohio. He received his medical degree from Johns Hopkins University School of Medicine in 1909 and entered the military service in that year. During World War I he served with the 3rd Division and later as Medical Inspector of the Army of Occupation in Germany. He was on active duty until 1945 when he retired and returned to Ohio.

He is survived by his widow, Mrs. Helen E. Ferenbaugh, 2354 Bexley Park Road, Columbus, Ohio, and one daughter, Mrs. William L. King.

Interment was at Lakeview Cemetery, Cleveland, Ohio.

Rear Adm. Perceval S. Rossiter, U. S. Navy, Ret.

Perceval Sherer Rossiter, Rear Admiral, Medical Corps, U. S. Navy, Retired, died at his home in Santa Barbara, California on December 20, 1957 at the age of 83.

Admiral Rossiter was a native of Sheperdstown, West Virginia. He received his medical degree from the University of Maryland in 1895. At the outbreak of the Spanish-American War in 1898, he enlisted in the U. S. Army, and after duty in Cuba, served in the Philippine Islands during the insurrection, returning to the United States in 1902. On January 20, 1903, he was appointed Acting Surgeon in the U. S. Navy. On March 17, 1933, he was appointed Surgeon General of the Navy and Chief of the Bureau of Medicine and Surgery, with the rank of Rear Admiral. He was reappointed on March 17, 1937 and served until December 1, 1938, when he was transferred to the retired list, having reached the age of 64 years. He then served for over ten years as the Chief of Staff at Gallinger Hospital, Washington, D.C.

Admiral Rossiter had contributed several articles to *The Military Surgeon*, the former name of this journal. He was president of the Association of Military Surgeons-U. S., during 1938, and thus became a Life Member of the Association. He was a Fellow of the American Medical Association and the American College of Surgeons.

He is survived by his daughter, Miss Ernestine Rossiter who resides at 1519 San

Leandro Lane, Santa Barbara, Calif.

Interment was at Santa Barbara, California.

Brig. Gen. Wm. Lee Hart, U. S. Army, Ret.

William Lee Hart, Brigadier General, Medical Corps, U. S. Army, Retired, died at the Veterans Hospital, San Antonio, Texas, on December 22 at the age of 76.

General Hart was a native of Yorkville (now York), South Carolina. He received his medical degree from the University of Maryland in 1906. His interest in military life began in 1898 when he enlisted in the South Carolina National Guard as a private. From that rank he advanced to captain in 1908 when he entered the U. S. Army Medical Corps. His service was an uninterrupted one until his retirement in January 1945. He was Chief of the Overseas Division in the Office of the Surgeon General and later in World War I served with the American Expeditionary Forces in France and Germany. He held many important assignments during

his military service and at his retirement during World War II he was Surgeon of the 8th Service Command with headquarters at Dallas, Texas.

After his retirement from the Army General Hart became Dean of the Southwestern Medical College (1946) and held that position until 1950.

In 1934 he had the LL.D. degree conferred on him by Baylor University and in 1946 the L.H.D. degree by Southwestern Medical College. He was a graduate of the Army Medical School (1908), the Command and General Staff School (1926), the Army Industrial College (1927), and the Army War College (1931).

General Hart received awards from Bolivia, Ecuador, Serbia, Poland, France, and Panama. He was a member of many organizations: American Medical Association, the American College of Surgeons, the American Public Health Association, American College of Physicians, to name a few. He was a Life Member of the Association of Military Surgeons.

General Hart's home address was 2211 Oak Lawn Ave., Dallas 4, Texas.



N
is p
the
keep
of f
ence
heav
rent
spec
lectu
kind
T
able
tions
indu
the
scien
man
rese
titles
their
gotte
T
of M
entifi
bodie
way
basic
Fede
tiona
form
Fede
achie
of th
organ
tion.
certai
tivitie
advan
poran
As

Highlights of the Scientific Exhibits of the 64th (1957) Annual Convention

By

CLAUDIUS F. MAYER, M.D.

MILITARY MEDICINE is passing through one of the most momentous periods of its history. It is progressing with such great strides that the individual medical officer is unable to keep up with the advance, without the aid of frequent meetings and scientific conferences. At the annual conventions, in the heavily loaded program, he will get the current trends in military medicine or in his special branch of science, condensed into lectures, demonstrations, and exhibits of all kinds.

The lectures of conventions are later available in print, and the commercial innovations, marketed by the medical and surgical industries, are already briefly described in the printed program whereas the various scientific exhibits, that require hundreds of manhours for planning, selecting, designing, research study and drafting, are listed by titles only, and, soon after the convention, their important information is easily forgotten.

The 1957 Convention of the Association of Military Surgeons displayed thirteen scientific exhibits, prepared by the various basic bodies which compose the association. In one way or another, each was a variation on the basic theme of the Convention, i.e., that *the Federal Medical Services offer many educational opportunities which enable the uniformed and civilian medical officers of the Federal Government to raise their level of achievement to professional excellence*. Some of the exhibits demonstrated the general organization of this Federal medical education. Others were proofs and examples of certain specific phases in the educational activities, or they told about the facilities for advanced medical investigations of contemporary military medical problems.

As a form of pictorial and artistic docu-

mentation of knowledge, medical exhibits in general are of great value. Hence, we studied the pictorial material of this Convention with great interest. In the hope of capturing some of the highlights and, in word and picture, to preserve some of the outstanding features of the scientific show for the future, here are our annotations and personal impressions on the exhibits.

Non-penetrating injuries of the heart and aorta.—Exhibited jointly by the Cardiology Service (Brig. Gen. Thomas W. Mattingly, MC, USA) of Walter Reed Army Medical Center and the Armed Forces Institute of Pathology (AFIP). On three large panels were shown, macroscopic and microscopic photos and radiograms of the heart, electrocardiograms, and a few cartoons depicting the origin, of injuries to the heart which often occur without evident chest injury. The lesions of the *pericardium and heart muscle* may vary in degree. They either remain clinically asymptomatic, or they are shown by an anginal syndrome, or coronary thrombosis, or arrhythmias and disturbances in the electrocardiogram (EKG), etc. Thus, a small girl who was hit by an automobile developed a right bundle-branch block. Treatment of such injuries is primarily medical; surgery is called for in presence of structural defects. The Sad-Sack type of figure of a GI-Joe illustrates that the *causes* of penetrating heart injuries are indirect forces, compression, deceleration (sudden stop of an elevator, etc.—Fig. 1). Statistical tabulations and transparent heart photos indicated what type of lesion was produced by these forces in 546 cases. Another panel carried the *injuries and rupture of the aorta*, based upon 275 observations. Seeing the seriousness of pathological changes and the roentgenograms of the pseudo-aneurysms of the aorta, we were surprised to read that the signs and

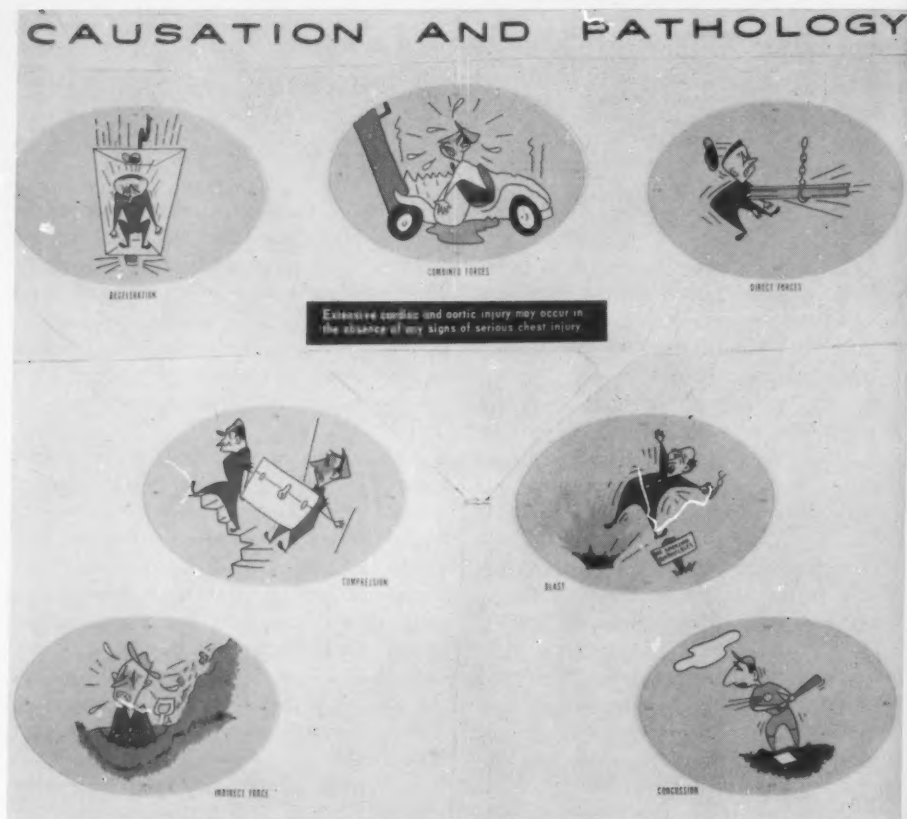


FIG. 1. CARDIAC AND AORTIC INJURY.

symptoms of aortic lesions were frequently non-specific and that the blood pressure might be normal or might remain stable.

The Armed Forces Institute of Pathology.—Exhibited by the Institute itself (Capt. W. M. Silliphant, MC, USN, Director).—Several panels, with words, tables, photos and sample pages of publications, explained the organization of this great educational and research institution of America. By its various services, long ago it became a National, nay, International Institute of Pathology, always ready for consultation and for aid of the individual investigators anywhere in the world. By its short courses, residencies, publications, and films on one hand, and by its advanced research activities on the other hand, it is the stronghold of modern military

medicine in the United States. A special panel illustrates the unusual facilities available at the AFIP for modern trends in research (arrangements for forensic studies, ultracentrifuge, immunochemistry, radiobiology, etc.)

Retinal changes produced by high-intensity ionizing radiation.—Exhibited by the U. S. Air Force School of Aviation Medicine, Randolph Field, Texas (Lt. Col. Warren T. Culver, MC, USAF).—Enlarged photographs of the eye fundus and microphotos of the retinal layers demonstrated the various pathological changes which developed in the eye of the Macaca rhesus monkey after exposure to ionizing radiation. Gamma rays of Cobalt⁶⁰, or mixtures of neutrons and gamma radiation were directed

on the body, the head, a single eye, or the whole body of the experimental animal in various combinations of site and dosage (from 2,000 r to 30,000 r), and exposure time. The type of retinal change may be papilledema, retinal edema, autolytic destruction of retinal layers, pyknosis of the nuclei of the rod cells and of the bipolar and ganglion cells, too, etc.

Veterinary medicine in Air Force research.—Exhibited by the Office of the Air Force Surgeon-General (Lt. Col. C. H. Snider, VC, USAF) and the Maxwell Air Force Base, Ala. (Lt. Col. N. G. MacEachern, VC, USAF).—As evidenced by the 4 large attractive panels of this exhibit, the Veterinary Corps is a very essential branch of the Air Force Medical Services. One of the *major missions* of this Corps is to maintain a sufficiently large and healthy stock of laboratory animals for experimentation and research. *Aviation medical research* usually starts with observations on experimental animals, and the data gathered on the biological and pathological effects of artificially created environments are then extrapolated from the animals to man. The goals of aviation medical research are many. The exhibit panel listed such experimental studies as passive defense against the exposure to various dosages of cosmic and

other radiation, escape from high-performance aircraft, space medicine, deceleration, radiobiology, biophysics, ophthalmology (chorioretinal burn from radiation) (Fig. 2), studies of the effects of drugs in prevention of kinetosis, microbiological studies (e.g., on encephalitis virus), psychiatric and neurological observations with encephalography, diet in flight and studies on survival diet. *Veterinary surgery* in the Air Force is credited with the development of a prosthetic hip for dogs which also proved suitable in human orthopedic surgery. This was shown by a model acetabulum in which the plastic femoral head is kept in a perpetual rhythmic motion.

Medical education in the U. S. Army.—Exhibited by the Education and Training Division (Col. Byron L. Steger, MC, USA) of the U. S. Army Surgeon-General's Office. Several panels with text, diagrams, maps, and pictures, described the clinical clerkship program, the facilities in the 10 teaching hospitals of the U. S. Army, the internship program (there are 164 spaces available in the 9 hospitals), the fellowship program, and medical officers' courses, the residency program and other ways of postgraduate education in military medicine.

Psychiatry in the U. S. Navy's Operation Deep-Freeze.—Exhibited by the U. S. Navy

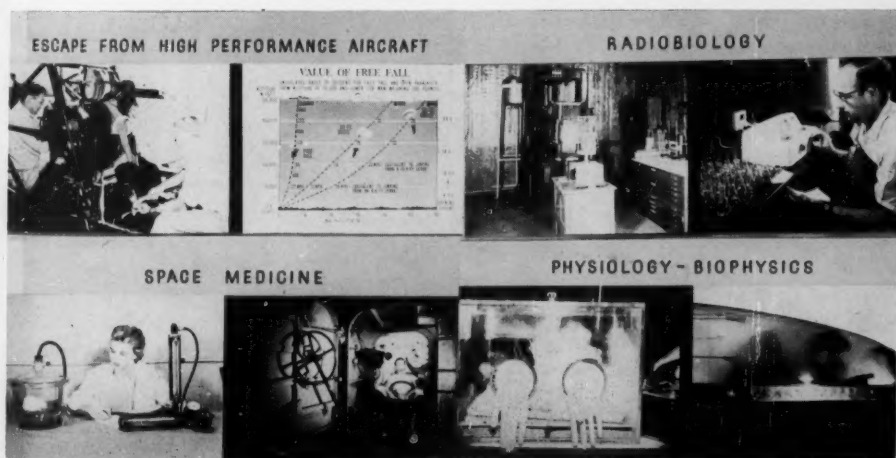


FIG. 2. AVIATION MEDICINE

Bureau of Medicine (Capt. G. N. Raines et al.). This was a very colorful and scenic exhibit, composed of three sections. The first section showed that, as a part of the current International Geophysical Year, the U. S. Navy launched its Operation Deep-Freeze to the Antarctic. In close relationship with this, the Bureau of Medicine started a psychiatric research program which is proceeding in three phases: (1) selection and screening of the Antarctic team-workers on psycho-neurological grounds, (2) performance study of the selected individuals in their new environment, and (3) correlation of the data. In the small middle panel, continuously changed large color slides illustrated the hazards of the Antarctic. The third panel was a huge fascinating panoramic view of the landscape and the life at a naval base in the Antarctic.

Newer approaches to study of the liver.—Exhibited by staff members of the U. S. Naval Hospital, St. Albans, N.Y. (George L. Calvy et al.).—Several panels, including a giant outline of the vascular pathways from the cubital vein of the right arm to the liver, show the Navy's success in catheterizing the liver, subsequent injection of radiopaque material into the hepatic venous system, and production of very instructive radiograms. It is claimed that such hepato-phlebographic studies make the understanding of liver cirrhosis easier, and they also aid in the treatment of portal hypertension.

Historical volumes of the Medical Department, U. S. Army, World War II.—Exhibited by the Historical Unit of the U. S. Army Surgeon-General's Office. This exhibit consisted of three panels with some text and sample pages taken from the published volumes. Below the central panel, the eleven published volumes were exhibited.

Continuous visual monitoring of 2 MEV rotational x-ray therapy.—Exhibited by the National Cancer Institute (J. R. Andrews, M.D.), Public Health Service, Bethesda, Md.—This was an exhibit composed of three panels. One drawing showed the visual monitoring method as the chest of a sick man was being exposed to high-frequency

radiation. Another panel illustrated the instrumentation for the control of x-ray irradiation. The third panel showed the results of therapeutic radiation.

Blood and blood products.—Exhibited by the Division of Biological Standards (J. T. Tripp, M.D.), National Institute of Health, Bethesda, Md.—One part of the exhibit indicated the main activities of the Division of Biological Standards, including the licensing, testing, annual inspection, and research. Another portion of the panel was a composite picture of the types blood and blood derivatives, diagnostic serums for laboratory tests, and therapeutic immune serums, which all belong under the domain of this important division of the Public Health Service.

Space biology.—Exhibited jointly by the Armed Forces Institute of Pathology and the Air Force.—Partly for its topic, partly for the excellent and symmetrical arrangement of its details, this exhibit had the greatest attraction for me personally. It was composed of three panels. The first panel shows the objectives and some details of the ascent of Major David E. Simons, USAF, who actually climbed to an altitude of 103,000 feet in the stratosphere. His objectives were the study of space adaptation and of the effects of cosmic rays. The middle panel held in its center the three dimensional cross-section of a *model of the gondola* (a sphere like Sputnik!) which had been used for the experimental flights of mice into the stratosphere (Fig. 3). Such gondolas are very carefully prepared to keep the animals alive against cold and heat. There is a flat cage at the equatorial portion of the gondola into which the mice are placed. Special devices are attached for heating, oxygenation, absorption of carbon dioxide, insulation against cold, etc. The third panel illustrated the experiments which were carried out for the study of the cosmic rays in high altitude flights. We are shown scenes of the launching of the balloon on 15 July, also scenes of its flight across the country from Sault Ste Marie to Buffalo, South Dakota, where it descended at 5:30 P.M. on 16 July, 1957. The rainlike fall of the ubiquitous cosmic rays is



FIG. 3. GONDOLA USED IN ANIMAL FLIGHTS.

demonstrated on a couple of radiograms.

Audiology in the Veterans Administration.
—Exhibited by the Audiology and Speech Correction Branch (Bernard M. Anderman) of the Physical Medicine and Rehabilitation Service of the VA, and by others. The exhibit consisted of 3 panels showing the

problem of the deaf veteran and the service he receives from the VA. Servicemen may lose the acuity of their hearing for many reasons. The size of the problem is evident by the large number of patients (circa 15,000) who during World War II had entered the four military hospitals which were equipped for rehabilitation of the deaf. Today, out of 82,000 deaf veterans, 35,000 have been issued hearing aids by the Veterans Administration. Audiological clinics are now functioning in 12 major cities, at many other university hospitals, and elsewhere. One of the exhibit panels demonstrated the ways of rehabilitation of hearing (auditory training, speech reading, speech conservation, speech correction), the methods of audiometry, etc. The Veterans Administration also devotes time to research in the field of acoustics and audiology, including problems of hard of hearing old people, improvement of the performance of hearing aids, acoustic instrumentation, development of new methods of examination and rehabilitation of the deaf, etc.

(Continued on page 149)

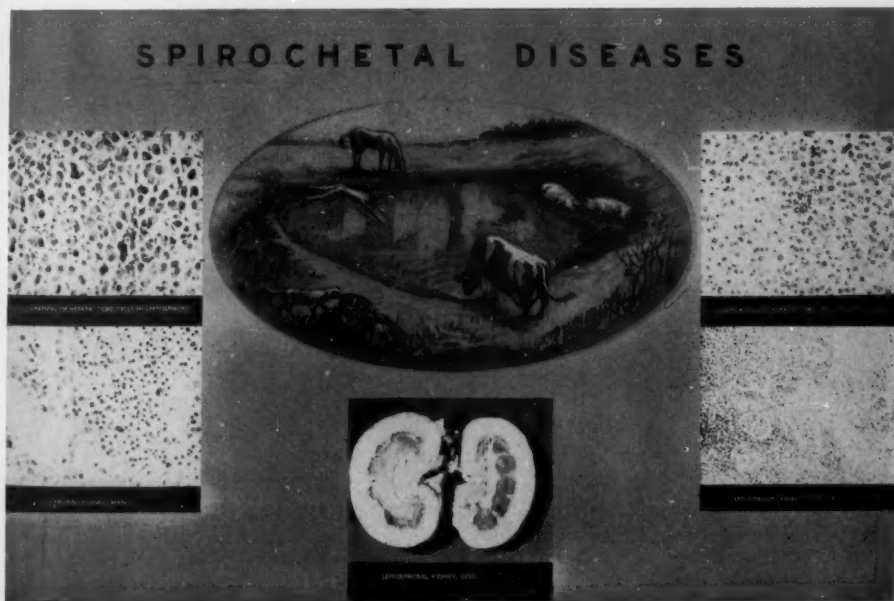


FIG. 4. LEPTOSPIROSIS

RECORDED BY THE CAMERA AT THE 64TH ANNUAL CONVENTION
WASHINGTON, D.C., OCTOBER 28, 29, AND 30, 1957



THE PRESIDENT, COL. AMOS R. KOONTZ, DELIVERS
THE PRESIDENTIAL ADDRESS



INTERNATIONAL DELEGATE REGISTRATION
Col. George B. Green, USAF (MC), Chairman
of Committee (seated).



AT THE OPENING CEREMONY

(L to R) Rear Adm. Bartholomew W. Hogan, Surgeon General, U. S. Navy; Maj. Gen. Silas B. Hays, Surgeon General, U. S. Army; Dr. Frank B. Berry, Ass't. Secretary of Defense (Health and Medical); Maj. Gen. Dan C. Ogle, Surgeon General, U. S. Air Force; Dr. Leroy E. Burney, Surgeon General, U. S. Public Health; Dr. John C. Nunemaker, Director, Education Service, Vet. Adm.



AT THE REGISTRATION DESK



THE LATEST INFORMATION



LADIES' AFFAIRS DESK



SCENE AT PHARMACISTS' LUNCHEON



Courtesy Dr. Arthur Turner

WREATH LAYING CEREMONY BY FOREIGN DELEGATES AT TOMB OF THE UNKNOWN SOLDIER

Analogous pathological patterns in man and animals. Exhibited by the Veterinary Research Branch of the Armed Forces Institute of Pathology. The material was collected by veterinarians of the Army and Air Force (Lt. Col. Thomas C. Jones, VC, USA, etc.).—This was a large and impressive exhibit composed of seven panels on which photos, microphotos, and roentgenograms were mounted, showing the pathology of the many diseases which are common in animals and man, and which will produce similar reactions in the animal and human tissues. These include congenital anomalies, metabolic disorders, reaction to injury, lesions caused by fungi and related pathogenic agents (e.g., histoplasmosis), tuberculosis, leptospirosis,

viral diseases, parasitic ailments, and tumors. A huge central transparent panel demonstrated the tissue change in the udder of a tuberculous cow. On another panel, the artist illustrates the dangers of bathing in the "ol' swimmin' hole," at the rear of the farmyard, where dogs, cattle, swine, horse, and the farmer's son share the same water, with the risk of *Leptospira* infection (Fig. 4).

Many of the individual exhibits of this Convention bear the hallmark of the Medical Illustration Service of the Armed Forces Institute of Pathology, only with a few exceptions. Hence, their general excellence was not a surprise. The color and illumination of the panels was generally satisfactory for good visibility, or occasionally even for

the creation of sensational effects (e.g., the mystic blue light over the Antarctic) in one exhibit. The mounted material was highly informative, accurate in detail, and well organized, though the methods of exhibition and illustrative art were only according to the contemporary conventional technic. The erection of the panels in corridors and

thoroughfares of the hotel has perhaps some advantages, and the exhibits may thus catch the greatest number of casual eyes, but crowded corridors would hardly leave place and/or time for the peripatetic onlooker to longer study and for the contemplation that these exhibits would certainly deserve.

BUSINESS MEETING, 64TH ANNUAL CONVENTION

The Annual Business Meeting of the Association of Military Surgeons of the United States was held during the 64th Annual Convention at Hotel Statler, Washington, D.C.

The meeting was called to order at 1:30 P.M., October 30, 1957 by the President, Col. Amos R. Koontz, Medical Corps, Maryland National Guard.

The Secretary presented the financial statement as of September 30, 1957.

GENERAL FUND

Assets

Cash in Checking Account	\$22,402.19
Petty Cash Fund	20.00
Accounts Receivable	725.16
Investments (Stocks and Bonds)	42,733.00
Savings Account	14,185.84
Furniture and Fixtures	4,984.35
	<hr/>
	\$85,050.54

Liabilities

Withholding Tax and Social Security Tax Payable	354.77
---	--------

Net Worth

Reserve for Future Operating Expense	
Opening Balance	71,547.83
Less: Stock Vol. Adj.	195.00
	<hr/>
	71,352.83
Add. in Current year from Operations ..	13,342.94
	<hr/>
Total Liabilities and Net Worth	\$85,050.54

Receipts and Disbursements

Receipts

Membership Dues	\$29,392.00
Magazine Income	60,114.54
Book Sales	3,417.56
Miscellaneous (cert. emblems, etc.) ...	3,433.45
	<hr/>
	\$96,357.55

Disbursements

Magazine Expense	\$44,874.88
Books	2,673.98
Office Expense	8,184.15
Salaries	21,638.00
Retirement Fund	3,894.14
Misc. Expenses	1,749.46
	<hr/>
	\$83,014.61

Excess of Receipts over Disbursements ..\$13,342.94

SUSTAINING MEMBERSHIP FUND

Checking Account Balance as of Oct. 1, 1956	\$ 6,393.85
Receipts for Current Year	10,374.00
	<hr/>
	\$16,767.85
Disbursements	10,677.82
	<hr/>
Checking Account Balance as of Sept. 30, 1957	6,090.03
Building and Loan Assoc.	12,412.59
	<hr/>
	\$18,502.62

CONVENTION ACCOUNT*

Bank Balance Oct. 1, 1956	\$ 4,788.18
Receipts for Current Year	25,886.69
	<hr/>
	\$30,674.87
Disbursements for Current Year	22,710.00
	<hr/>
Balance Oct. 1, 1957	\$ 7,964.87

* This includes funds earmarked for 65th Annual Convention. Overlap due to fiscal year ending September 30.

MAJOR LOUIS LIVINGSTON SEAMAN TRUST FUND— FOR ANNUAL AWARD ONLY

Balance in Bank Oct. 1, 1956	\$ 616.54
Add Income from interest on bonds and savings account	194.61
	<hr/>
	811.15

Disbursements in connection with prize .. 167.50

Balance	643.65
U. S. Treasury Bonds	7,600.00
Net Worth of Fund, Sept. 30, 1957	\$ 8,243.65

(Audited by Professional Business Management, Inc., Washington, D.C.)

The Secretary reported the change in cover design for the journal of the Association, as of January 1958 issue. The words "Formerly The Military Surgeon" were to be deleted, and the words "Official Journal of the Association of Military Surgeons" were to be added. The cross of the Association would appear in the lower left hand margin of the cover.

The Secretary reported the need for members to make the Association known more widely. Eligible persons are always welcome to membership.

There was a report on the Insurance program by Mr. F. W. McCormack.

By vote of members present the published proposed change to the By-Laws of the Association were adopted. These are in effect the change of the fiscal year from September 30 to June 30, the audit of funds by a certified public accountant, and the broadening of permissible investments by the Board of Trustees of the Retirement Fund. (For details see page 203, September issue of MILITARY MEDICINE.)

The Nominating Committee submitted its report in which the following persons were presented for officers for 1958: For President, Colonel Charles R. Mueller, USA, Ret.; for First Vice-President, Brig. Gen. H. H. Twitchell, U. S. Air Force (MC); for Second Vice President, Rear Adm. Richard A. Kern, U.S.N.R. Ret.; for Third Vice-President, Ass't. Surg. Gen. John W. Cronin, U. S. Public Health Service; for Fourth Vice-President, Major Gen. James P. Cooney, MC, U. S. Army; for Fifth Vice-President, Rear Adm. Irwin L. Norman, MC, U. S. Navy; for Sixth Vice-President, Colonel Robert C. Kimberly, MC, Maryland Nat'l Guard.

The Secretary was instructed to record an unanimous ballot in favor of the officers

selected by the Nominating Committee.

The Resolutions Committee presented the following resolutions which were unanimously adopted.

Resolution No. 1

WHEREAS, The 64th Annual Meeting of the Association of Military Surgeons of the United States has been successful and contributed beneficially to the advancement of both the art and science of military medicine, and

WHEREAS, This achievement is due to the sacrifice and personal contributions of many persons, both members and non-members of the Association, and

WHEREAS, The Association wishes to acknowledge with a grateful and sincere expression its appreciation to selected individuals who have served its interests with enthusiasm and without remuneration, Therefore be it

Resolved, That the following persons be given the thanks of this Association by rising vote and applause:

- (a) Colonel Amos R. Koontz, MC, NG, Md. President—for able leadership in conducting the affairs of the Association for the past year;
- (b) Major General Paul I. Robinson, MC, USA—for his contributions as General Chairman for this convention;
- (c) Colonel Robert C. Kimberly, MC, Md. NG—for developing highly interesting and informative scientific program;
- (d) Captain William M. Silliphant, MC, USN—for coordinating and supervising a splendid program of scientific exhibits;
- (e) Colonel Inez Haynes, ANC, USA—for a smoothly working and efficient registration and reception program;
- (f) Colonel Harriet S. Lee, AMSC, USA—for her excellent planning and supervision of the official dinners and luncheons for this convention;
- (g) Colonel Bernard Aabel, MSC, USA—for serving and arranging delightful and appropriate ceremonies and entertainment;

(Continued on page 153)

INTERNATIONAL DELEGATES, 64TH ANNUAL CONVENTION



1st Row (L to R): Maj. Gen. Setsuzo Kimbara, *Japan*; Brig. Gen. Oswaldo Aria Capetillo, *Mexico*; Brigadier K. A. Hunter, *Canada*; Brig. Gen. Theodore Joedicke, *West Germany*; Col. Amos R. Koontz, MC, NG, Md., (*Pres. of Assoc.*); Maj. Gen. Paul I. Robinson, *USA*, (*Gen'l. Chairman*); Air Vice Marshal Chua Punsoni, *Thailand*; Brigadier S. G. Shier, *Canada*; Commodore Kamol Chambundabongse, *Thailand*; Commodore Johan Greve-Brun, *Norway*.

2nd Row (L to R): 1st Lt. Abelardo Lora, *Dominican Republic*; Colonel Francisco Gonzalez, *Dominican Republic*; Capt. Evandro Oliveira, *Brazil*; Col. Clovis Cardoso de Moraes, *Brazil*; Capt. Demetrio Xavier, *Brasil*; Dr. Samiul H. Malik, *Saudi Arabia*; Capt. Efraim Guerrero, *Ecuador*; Capt. Soe M. Thein, *Union of Burma*; Col. Joaquin A. Sanchez, *Philippines*; Col. Luigi Campanelli, *Italy*; Capt. Med. Miguel A. Miguel, *Argentina*; Col. Tran Quang Dieu, *Vietnam*.

3rd Row (L to R): Lt. Cdr. John Kounezis, *Greece*; Major Jacobo Alvarez, *Dominican Republic*; Capt. Sychhin Thai, *Cambodia*; Col. Richard L. Marks, *Great Britain*; Cdr. Hans Bierbaum, *West Germany*; Wing Cdr. John Howitt, *Great Britain*; Lt. Col. Francisco Loscertales, *Spain*; Major Pham Van Cuong, *Vietnam*; Capt. Orhan Mordalga, *Turkey*; Lt. Col. J. D. Galloway, *Canada*; Col. Manuel R. deLuna, *Philippines*; Capt. Seng Seang, *Cambodia*.

4th Row (L to R): Cdr. Ola Knutrud, *Norway*; Dr. Byron J. Olson, *USPHS (Professional Comm. Chairman)*; Wing Cdr. J. C. Wickett, *Canada*; Maj. Julian Morales-Rocha, *Venezuela*; Lt. Sergio Garriga, *Spain*; F/Lt. J. C. Lane, *Australia*; Col. George B. Green, *USAF (International Liaison Comm. Chairman)*; Lt. Col. Borge O. Alm, *Sweden*.

(h) Colonel George B. Green, USAF (MC)—for his diplomatic and successful endeavors in conducting the International Liaison Committee's program!

(i) Colonel James H. Kidder, MC, USAF—for supervising the work of the convention as it pertained to reserve officers;

(j) Major William V. Davis, MSC, USA—for excellent copy and publicity coverage for the Association's annual meeting;

(k) Mrs. Charles S. Gersoni—for her services and charm in conducting the affairs of the Ladies' Entertainment Committee;

(l) Doctor Byron J. Olson, USPHS—for ably conducting the affairs of the Professional Activities Committee;

(m) Captain Clarence J. Coles, TC, USA—for his effective arrangements and supervision of transportation in connection with the meeting.

Be It Further Resolved, That a copy of this resolution be given to each person named.

Resolution No. 2

WHEREAS, The 64th Annual Convention of the Association of Military Surgeons of the United States is now a success, and

WHEREAS, This success is due in great measure to supporting organizations,

Be It Resolved, That the Association acknowledges with gratitude and public expression the highly successful efforts and contributions of these organizations:

- a. The Armed Forces Institute of Pathology
- b. The United States Army Band
- c. The United States Air Force Band
- d. The United States Navy Orchestra

Resolution No. 3

WHEREAS, Properly prepared and displayed exhibits add to the scientific and technical interests and supplement the theme of this convention, and

WHEREAS, Both scientific and technical exhibitors through the medium of their exhibits and by visual and verbal communication add to the art and science of military medicine,

Be It Resolved, That the Association of Military Surgeons recognizes and appreciates the efforts of all exhibitors in providing for the membership interesting, instructive and informative displays, and the uniform courtesy shown by their representatives during this 64th Annual Convention.

Resolution No. 4

WHEREAS, Basic financial support and continuing interest on the part of the Association's Sustaining Members have merited an outstanding tribute, and

WHEREAS, The Association of Military Surgeons of the United States is indebted to them for this support,

Be It Resolved, That the Association express to each of them by letter its appreciation for their valuable contributions.

The President yielded the chair to the 2nd Vice-President, Brigadier General Harold H. Twitchell, USAF (MC) who presented Colonel Koontz with the badge of the Association and a Life Membership Certificate.

There being no other business the meeting adjourned at 1:45 P.M.

COLONEL ROBERT E. BITNER

USA RET.

Secretary



BOOK REVIEWS

ORTHODONTICS—PRINCIPLES AND PREVENTION, AND PRACTICE AND TECHNIQS. Two volumes. By J. A. Salzmann, D.D.S., F.A.P.H.A., Director, American Board of Orthodontics. 878 pages, 733 illustrations, 60 tables. J. B. Lippincott Company, Philadelphia and Montreal. 1957. Price \$33.00 for set.

Through these companion books, Dr. Salzmann has improved upon his former book in several ways. These volumes are divided so that both are of a size easily handled. In addition to the better organization and a more feasible method of presentation, these books contain the latest developments in the field of Orthodontics.

Orthodontics: Principles and Prevention, contains new material which is especially evident in the postnatal growth of the skull, the stomatognathic system and the development of the dentition.

Orthodontics: Practice and Technics, contains added information in cephalometrics and anthropometrics, principles of mechanotherapy, the Tweed method, Johnson Twin wire method, activators, myofunctional appliances and bite plates. The procedures used in various appliances are discussed at length.

In both books, the photography is outstanding and quite explanatory. The books are indexed both by authors and material.

Without reservation, these companion books are excellent references and are designed to be of value to the non-specialist as well as to the Orthodontist.

HERBERT H. HUGHES, D.D.S.

IMPLANT DENTURES. INDICATIONS AND PROCEDURES.

By Aaron Gershkoff, B.S., D.D.S., Guest Lecturer on Implant Dentures, Post Graduate Division of Tufts University School of Dental Medicine; and Norman I. Goldberg, D.D.S., Past-President American Academy of Implant Dentures. 256 pages; 327 illustrations. J. B. Lippincott Company, Philadelphia and Montreal. 1957. Price \$12.00.

Written by pioneers in implant dentistry, this comprehensive, profusely illustrated, and instructive text describes a technique—implant denture prosthetics—for treating patients in whom the usual type of complete denture has failed.

Thoroughly, and with opinions well supported by biologic experiments, practical cases, and the experience of other surgical specialties, *Implant Dentures* discusses these topics: anatomy of the edentulous mouth; examination, indications, contraindi-

cations, and diagnosis; bone impression procedure; description, design, construction, and insertion of subperiosteal prosthodontic implants; histopathology of such implants; and various other pertinent subjects.

The authors candidly admit the potential for failure and frankly discuss the physiologic weakness inherent in implant dentures. In a chapter on the causes of failures, they emphasize the necessity of considering all related factors before using such appliances.

This greatly needed text should do much to clarify the controversy surrounding implant dentistry. Enthusiastic acceptance of the book, however, does not imply equally enthusiastic acceptance of the concept presented (or condonation of the errors in the anatomic section or the use of obsolete prosthodontic terminology), but gratification for the first honest and adequate explanation of the principles, procedures, and problems in implant denture prosthetics.

CAPTAIN J. V. NIIRANEN, (DC), USN

CAPTAIN D. E. COOKSEY, (DC), USN

A FRONTAL SECTION ANATOMY OF THE HEAD AND NECK. By Otto Frederic Kampmeier, Ph.D., M.D., Professor of Anatomy, Emeritus, Univ. of Illinois; Arthur R. Cooper, Ph.D., M.D., Professor of Anatomy, Emeritus, College of Medicine, Univ. of Illinois; and Thomas S. Jones, B.F.A., Professor of Medical and Dental Illustration, Emeritus, Chicago Professional Colleges, Univ. of Illinois. 60 pages, 20 illustrations. University of Illinois Press, Urbana, Ill. 1957. Price \$15.00.

In view of the creeping curtailment of the teaching of gross anatomy in the modern medical school curriculum, it is heartening to realize that from time to time authors do appear with the courage to proclaim the importance of the subject and to prove that there are still fresh approaches to the knowledge and interest of this most basic of the medical sciences. This manual, limited to use in the dissecting laboratory where it will be a welcome aid to the student as he struggles through cranial anatomy, is the product of such authors. It must necessarily have been a labor of love.

After an introduction by the senior author, with an account of the history of the use of serial sections in the teaching of anatomy, there are five key figure reconstruction plates indicating the planes of the frontal sections, followed by twenty frontal sections of the head, all life size, the plates being

uncolored. The subject was a young adult male negro. The sections have been most fortunately cut, in that the two sides of the head appear almost identical. The labeling is extensive and clearly executed, and the anatomical terms follow closely the BNA system. One slight error appears on key figure reconstruction number II; that is, a label read *sinus frontales*, whereas it should read *sinus frontalis*.

The book is beautifully printed on heavy enamel paper, the leaves open out flat, and the plates are remarkable for their clarity. Compliments are due to both the authors and the printers.

JOHN MARTIN, M.D.

HANDBOOK OF ORTHOPAEDIC SURGERY. 5th Ed. By Alfred Rives Shands, Jr., B.A., M.D., Visiting Professor of Orthopaedic Surgery, University of Pennsylvania School of Medicine; in collaboration with Richard B. Raney, B.A., M.D., Professor of Surgery in Orthopaedic Surgery, University of North Carolina. The C. V. Mosby Co., St. Louis, Mo. 1957. Price \$9.75.

This is the Fifth Edition of this handbook which first appeared twenty years ago. Its avowed purpose was to provide an up-to-date, American textbook of orthopedic surgery. It achieved that purpose for in the intervening twenty years it has been the standard text for most medical students and a useful reference for those who are occasionally called upon to handle orthopedic problems.

It is truly a handbook and not a treatise for the resident or practicing orthopedist. In its 607 small pages the authors discuss the entire spectrum of modern orthopedics excluding fractures but including newly added sections on Rehabilitation, Fanconi's Syndrome, Senile Osteoporosis, Nonosteogenic Fibroma, Cervical Root Syndrome, Frozen Shoulder, Bicipital Tenosynovitis, Shoulder-Hand Syndrome, etc. The discussions of each disease entity are necessarily brief and sometimes superficial; however, the majority are to-the-point and contain a surprising amount of factual material. The discussion of congenital dislocation of the hip is outstanding in this regard.

There is an excellent 91 page bibliography for those who may want more information on a given subject.

The binding and printing are superb and the illustrations are excellent.

CAPT. WM. S. STRYKER, MC, USN

GIFFORD'S TEXTBOOK OF OPHTHALMOLOGY. 6th Ed. By Francis H. Adler, M.D., Wm. F. Norris, and George E. DeSchweinitz, Professor of Ophthalmology, University of Pennsylvania Medical School. 499 pages, 277 figs., 26 color plates. W. B. Saunders Co., Philadelphia and London. 1957. Price \$8.00.

The intent of the text is to provide the medical student and the practitioner useful information on eye diseases and injuries. Although falling short of completely realizing this objective, the book contains much worthwhile material.

The section on hypertension and arteriosclerosis is especially well done; the subjects of uveitis and choroiditis, papilledema and papillitis are well handled.

The essential anatomy of the eye is clearly presented without confusing minutia. The book is graced with fine illustrations which have been selected with obvious thoughtfulness.

The anatomy of the visual pathways is well written but the section would be enhanced by the presentation of further visual field defects and their interpretation.

The terms "anomalous correspondence," index of refraction, wide angle glaucoma, narrow angle glaucoma, require further elucidation in this text if a beginner is to realize their current meaning and significance.

CMDR. R. P. NADBATH, MC, USN

FUNDAMENTALS OF GENERAL SURGERY. John Armes Gius, M.D., D.Sc. (Med.), F.A.C.S., Professor of Surgery, College of Medicine, State University of Iowa. 720 pages, illustrated. The Year Book Publishers, Inc., Chicago, Ill. 1957. Price \$12.50.

This unpretentious book is exactly what the title implies, the fundamentals of general surgery. One cannot but agree with the author that there is a need and a place for a simple, straightforward textbook of surgery, unburdened of theory and controversial opinions which would present the basic principles of surgery to the fertile avidity of the medical student without the awesomeness of confronting almost all the extant surgical knowledge in one great tome.

The scope of the text is complete, and Dr. Gius has avoided the pitfall of condensing a subject by giving only the highlights—but has truly distilled the essence. All pertinent systems are covered plus the ancillary subjects such as "The Historical Perspectives, The Systemic Response to Injury, Fluid and Electrolyte Balance, Nutritional Balance, Principles of Surgical Care, Care of the Patient in the Operating Room"—and many others. A particularly good feature of this book is the list of "Suggested Readings" at the end of each chapter. There is no attempt at extensive illustrations, but emphasis has been placed on presenting the subject of general surgery in a one-two-three manner.

The format is in clear bold type, full page column. This text is admirably suited to the primary needs of the medical student and the author has accomplished his aim "to set forth in simple terms the considerations that are believed to be fundamental to the study of general surgery, including certain

aspects of physiology and pathology encountered in the patient."

CAPT. R. M. MURRAY, MC, USN

CURRENT SURGICAL MANAGEMENT. Editors: John H. Mulholland, M.D., New York University College of Medicine; Edwin H. Ellison, M.D., Ohio State University College of Medicine; Stanley R. Friesen, M.D., University of Kansas Medical Center; with contributions by 76 American authorities. 494 pages, illustrated. W. B. Saunders Company, Philadelphia and London. 1957. Price \$10.00.

Recognizing that knowledge is imperfect, and that there may be different ways to achieve an objective, the authors have successfully presented, side by side, varying viewpoints on certain surgical topics about which there is controversy. While the book does not comprehensively cover all surgical problems, the topics selected cover those questions which most commonly beset a surgeon.

Dogmatic answers to difficult problems are not provided. Instead, there is emphasis on the importance of individual consideration of the patient by stressing that patients, being human, react differently, and sometimes unpredictably, to the same disease process.

Within the past decade there has been an increasing inclination for surgeons to openly discuss their differences at various national and sectional surgical society meetings.

The many controversies which have been recorded by the carefully selected contributors provides for exciting reading.

This volume, which represents a marked departure from the context of previously published textbooks on surgery is recommended reading for all practicing general surgeons and surgical residents.

D. K.

AN ATLAS OF CARDIAC SURGERY. Prepared by: Jorge A. Rodriguez, M.D., Ass't Professor of Surgical Anatomy and Research Associate, Dep't. of Surgery, University of Mississippi Medical School. 250 pages. W. B. Saunders Company, Philadelphia and London. 1957. Price \$18.00.

This magnificent book is a masterpiece in medical illustrations of the newest and most rapidly advancing field of surgery. It represents the surgical technique of the leaders in cardiovascular surgery. To recommend it is not enough; it is a *must* for residents and those experienced in this field.

BRIG. GEN. JAMES H. FORSEE, MC, USA

QUANTITATIVE PHARMACEUTICAL CHEMISTRY. 5th Ed. By Glenn L. Jenkins, Ph.D., Professor of Pharmaceutical Chemistry and Dean, Purdue University School of Pharmacy; John E. Chris-

tian, Ph.D., Professor of Pharmaceutical Chemistry, Purdue University School of Pharmacy; and George P. Hager, Ph. D., Senior Scientist, Smith, Kline & French Laboratories. 552 pages. The Blakiston Division, McGraw-Hill Book Company, Inc., New York, Toronto, London. 1957. Price \$8.50.

Since publication of the previous edition four years ago, the numerous changes in methods of analysis in U.S.P. XV and in N.F. X, the continuing research on methods published in practically every issue of scientific journals, and the development of supplements has required a great deal of study to keep up to date in this basic area. The authors have surveyed this entire field, classified methods into groups, expanding to cover many applicable non-official methods, and produced a useful and convenient reference and textbook, which also may serve as a laboratory manual.

Suitable methods of sampling are considered and the determination of the standard deviation presented, along with other methods of calculation and of general directions for gravimetric and volumetric procedure, titration, pH, oxidation and reduction processes. The second part deals with special methods for determining ash, water, crude fiber, volatile oils, alkaloids and enzymes in official analyses.

Part three deals with physicochemical methods, including colorimetry in various forms, solubility, radiocactivity and chromatography. This summarizes much original work by the authors. Each section and individual chapters carry questions and problems, and there is a selected set of references. The book contains 61 figures and 80 tables.

This book can be recommended as a current, authoritative summary of recent developments, a means of supplementing information on various analytical processes, and as a handy reference book in the field.

JAMES C. MUNCH

METHODS OF GROUP PSYCHOTHERAPY. By Raymond J. Corsini, Ph.D., Research Associate, Industrial Relations Center, University of Chicago. 251 pages. The Blakiston Division, McGraw-Hill Book Co., Inc., New York, Toronto, London. 1957. Price \$6.50.

A number of books in recent years have come out on the subject of group psychotherapy, but this text attempts to review the methods without extensive theoretical discussion. As stated in the preface: "Two views exist about group psychotherapy. The first is that it is a diluted, more economical, less effective method than the individual procedure. This view is not usually shared by group therapists, who see the group method as a more complex, more difficult, more natural, and equally effective procedure."

This book is divided into two parts, the first

covering the "History, Theory, and Procedures," while the second part discusses "Some Major Methods of Group Psychotherapy." Unfortunately, the discussion in many cases is too brief. A bibliography of 419 items is given, which will help the student get a better grasp of this technic, and a chapter on visual aids gives some excellent suggestions.

There is no doubt that in the Armed Services group psychotherapy is the method of choice, as individual psychotherapy is almost prohibitive, except on a very superficial basis. Therefore, this volume may act as an introduction to the subject.

CMDR. JAMES L. MCCARTNEY (MC) USNR, RET.

RHEUMATOID ARTHRITIS. By Charles L. Short, M.D., Instructor in Medicine; Walter Bauer, M.D., Jackson Professor of Clinical Medicine; and William E. Reynolds, M.D., Director of the Robert W. Lovett Memorial Foundation for the Study of Crippling Disease; all of Harvard Medical School. 480 pages. Published for The Commonwealth Fund by Harvard University Press, Cambridge. 1957. Price \$7.00.

This is an unusual book—unusual because of its complete candor, its scientific accuracy and its modest presentation of a whole dictionary of facts *re* Rheumatoid Arthritis—*re* its historical, prodromal, clinical, roentgenological, and laboratory aspects, as well as the great economic and social significance of this disease.

The investigation reported herein represents a monumental effort on the part of many clinical scientists, patients, nurses and technicians on the staff of the Massachusetts General Hospital over a period of a quarter of a century. This group "study" was initiated in 1929 and ran intensively until 1936 but it did not end there and then because very thorough follow-up appraisals were conducted in 1937, 1947 and 1954.

A series of 300 patients were meticulously analyzed—later reduced to 293—and compared with 293 controls matched as to sex and age but without history or evidence of rheumatoid arthritis. The patients were hospitalized, whereas the controls were ambulatory; otherwise, the two groups were completely comparable. Moreover, statistical analysis of all results was rigidly employed throughout; all evaluations were thus impersonally appraised and should therefore stand the test of time.

There are some 44 chapters, each dealing with a significant aspect of this controlled study. At the end of each chapter is a summary of the salient points frequently followed by a provocative paragraph entitled "Objectives for Further Study."

In addition to the visual alphabetical index at the end of the volume, the authors have provided a Bibliography of 576 references. This study is so thorough that it approaches the tenor of an annotated bibliography. Yet, it is much more than a mere compendium. Rather it is a dictionary, a syntax and a lexicon at one and the same time. It will long stand as a "bible" on arthritis—especially for the rheumatologist—and it will continue to shine as a beacon of scientific procedure in the hazy field of clinical investigation because it employs so accurately the principles of statistical control. It should stand as a model for future clinical surveys regardless of the subject or subjects under investigation.

CAPT. CHRISTOPHER C. SHAW, MC, USN

HEADACHE—DIAGNOSIS AND TREATMENT. 2nd Ed. By Robert E. Ryan, B.S., M.D., M.S. (in Otolaryngology), F.A.C.S., Dep't. of Otolaryngology, St. Louis University School of Medicine. 421 pages. The C. V. Mosby Company, St. Louis. 1957. Price \$6.75.

The second edition of this excellent book discusses headache from the viewpoint of all the specialists involved. This included everyone from the general practitioner to the otolaryngologist. The reader may be amazed at the variety of the causes of headache—all are included from sinusitis to hangover.

Since the problem of headache is encountered in every type of medical practice the text covers a wide range of diseases, but all are approached in a logical manner with a simple easy-to-read technique. Throughout the book the author mentions drug products by name and does not hedge as to whether they are effective or not. This is a trend which should continue, for after all, most physicians prescribe proprietary products. The best chapter is the one on migraine, however they are all comprehensive.

Many aids to diagnosis and treatment are present in this rewarding volume on the frustrating problem of headache. Lengthy references are included at the end of each topic.

PHILIP H. SMITH, M.D.



ATTENTION—ALL ELIGIBLE* MEMBERS!

**Secure *your* needed insurance protection through your
Association's outstanding Group Insurance Plans.**

PLAN 1. DISABILITY INSURANCE PROGRAM

Providing benefits up to \$100. weekly for disability due to injury or disease. Sick-
ness benefits payable up to five FULL years for total disability occurring before
Seventieth birthday. Accident benefits payable up to Lifetime.

**BE SURE TO COMPARE THESE LIBERAL BENEFITS WITH ANY OTHER
PLAN IN WHICH YOU MAY BE INTERESTED.**

PLAN 2. HIGH LIMIT WORLD-WIDE ACCIDENT PROTECTION PLAN

Providing protection up to \$200,000. against Accidental Death, Dismemberment and
Loss of Sight. (This is applicable to each person insured regardless of number of
insured persons in any one accident.)

Each plan is a separate program. You may participate in either one, or both plans, as
best suits your individual requirements.

* Applications for coverage accepted from those members in a civilian status and under Age 60
for Plan 1, Age 70 for Plan 2.

Secure complete information from

ASSOCIATION SERVICE OFFICE

THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES

Suite 914, 1500 Walnut St., Philadelphia 2, Pa.

....., 19.....

To The Association of Military Surgeons of the United States
Suite 718, New Medical Bldg., 1726 Eye Street, N.W.
Washington 6, D.C.

I hereby apply for MEMBERSHIP in THE ASSOCIATION OF MILITARY SURGEONS
OF THE UNITED STATES, and enclose the sum of six dollars for my annual dues, in-
cluding MILITARY MEDICINE. (Make checks payable to THE ASSOCIATION OF
MILITARY SURGEONS, U.S.)

Name
(State both Christian and Surname in Full)

Title and Service

Address in full

Membership proposed by

.....

